Read me first!

Getting Started with Altera

July 2012

Get the latest version of this document at:

www.altera.com/education/training/courses/ORMF1000

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Using this Document

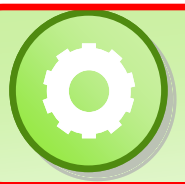
If you are new to Altera or programmable logic, this guide will help you with:

Getting Started: Get your *myAltera* account for full access to information and support

Research: See design examples, solutions, literature or intellectual property (IP) for your project

Preparation: Download Quartus II design software and access our range of training resources

Support: Troubleshoot your software installation and get support for your project



Design Resources: Successfully complete and optimize your design

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Getting Started…

- Whether you are a new Altera user or a seasoned designer, we recommend creating a ***myAltera*** account at www.altera.com/myaltera/
- Your ***myAltera*** account provides access to online services including:
  - **Training** - View the complete Altera course catalog and register for courses online
  - **mySupport** - Online technical support allows you to interact with the Altera Technical Support team
  - **Software** - Get software licenses and download software
  - **Literature** - Sign up for literature update notifications and request specific literature
  - **Reference Designs** - Available for download when you need them

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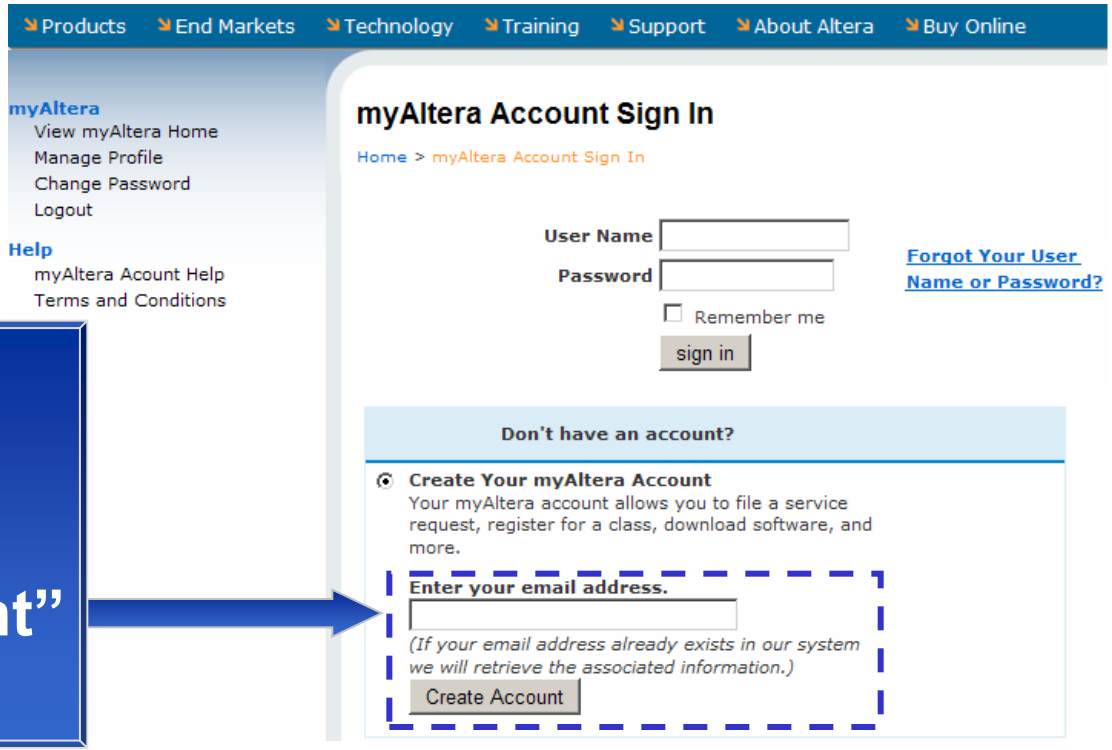
Getting Started…

How to create your ***myAltera*** account:

1. Go to the mySupport homepage: www.altera.com/myaltera

2. Enter your e-mail address and click the "**Create Account**" button.



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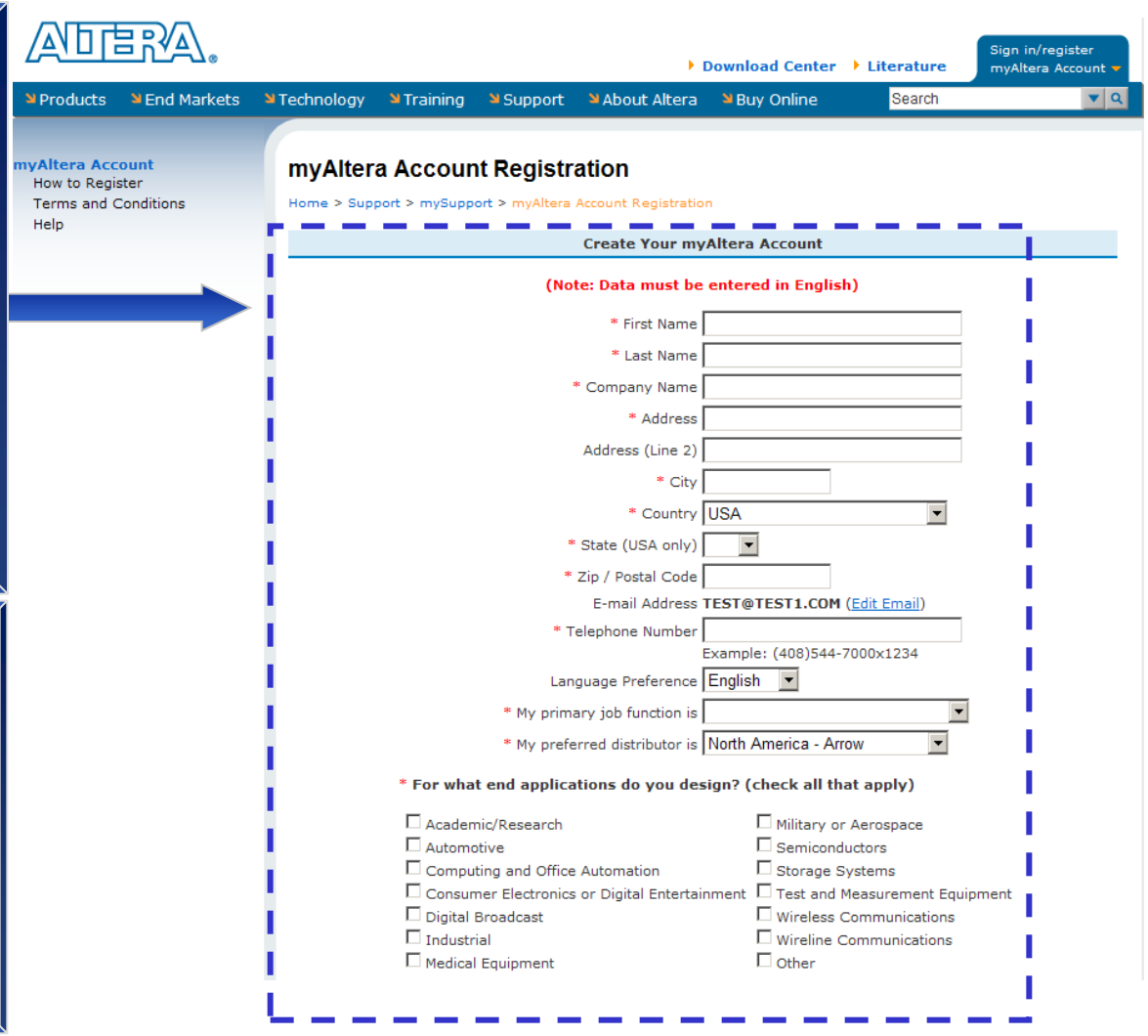
Getting Started…

3. Enter or confirm your contact information and click the “**Create Account**” button.

Sign up for Altera newsletters and announcements here.

4. You have successfully registered!

Click the “**Log In**” button to use your account.



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Research

- This section covers:
  - Design examples
  - Reference designs
  - IP
  - System Building Tools
  - Development kits
  - Devices
  - Technology center
  - End market solutions
  - Webcasts
  - Literature
  - Searching for information
  - Contacting a local distributor

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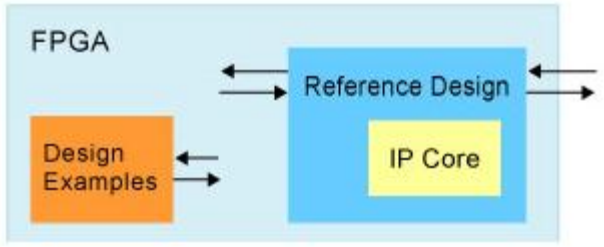
Design Examples

- A variety of building blocks are available to help you better understand and easily use Altera products, implement various functions, and address basic design needs: www.altera.com/support/examples/exm-index.html
- **Design examples** include HDL code samples to help you get started with using Altera products
- **Design entry/tool examples** highlight the design entry process and include samples of instantiating basic logic blocks, scripting, gate-level timing simulation tools, and debugging.
- Use the search box to search by keywords or product descriptions or use the navigation on the left to browse through the full list



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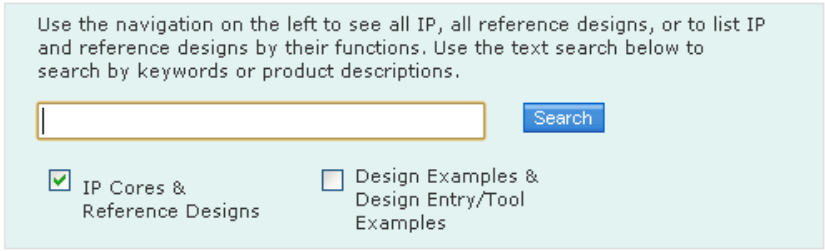
Reference Designs

- Altera and its partners develop and deliver reference designs that show efficient solutions for common system design problems:
- Allow design reuse and fast time to market by serving as technical sub-system or system blueprints, often for targeted applications www.altera.com/support/refdesigns
  - Can be downloaded with an myAltera account or requested using the automated request form
  - Use the navigation on the left to list by function, or use the search box on the main Intellectual Property & Reference Designs page to search product descriptions and keywords


Use the navigation on the left to see all IP, all reference designs, or to list IP and reference designs by their functions. Use the text search below to search by keywords or product descriptions.
Search
IP Cores & Reference Designs
Design Examples & Design Entry/Tool Examples

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Intellectual Property (IP)

- Altera and its **Altera Megafunction Partners Program (AMPP^{SM})** partners offer a large selection of IP cores optimized for Altera devices: www.altera.com/products/ip
  - **MegaCore functions** included in the **IP Base Suite** are free with an active Quartus II subscription: www.altera.com/products/ip/design/basesuite/ip-basesuite.html
  - If you do not have an active Quartus II subscription, you can evaluate Altera IP cores and some partner IP cores using **OpenCore Plus**: www.altera.com/literature/an/an320.pdf
    - Simulate the core within your system
    - Verify the design and evaluate its size and speed
    - Generate time-limited device programming files
    - Program a device and verify the design in hardware
  - For Altera IP Core technical support: www.altera.com/support/ip/ips-index.html

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System Building Tools

- Altera has different tools to address different aspects of system design and help in the design creation
  - **Qsys** System-integration tool powered by a new FPGA-optimized network-on-chip technology delivering higher performance, more scalable systems, including supports hierarchical design, and improved design reuse

    www.altera.com/products/software/quartus-ii/subscription-edition/qsys/qts-qsys.html
  - **DSP Builder** is a graphical design tool that is easy to connect multiple digital signal processing (DSP) design elements and create a custom datapath environment.

    www.altera.com/products/software/products/dsp/dsp-builder.html

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Development Kits

- Altera and its partners offer a wide range of development kits with everything you need to create, implement, and evaluate
  - Altera development kits include software, reference designs, cables, and programming hardware: www.altera.com/products/devkits/kit-dev_platforms.jsp
  - For Altera development kit technical support: www.altera.com/support/devkits/devkits-index.html
  - Altera's partners offer development platforms that address a wide range of applications: www.altera.com/products/devkits/kit-dev_platforms_partner.jsp

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Devices

- Altera provides a wide range of Device series and variants
  - www.altera.com/products/devices/dev-index.jsp
  - You can use the left column navigation bar to see a summary of features and capabilities and descriptions about each device series. Or you can select a family in the series from the listings on the page.
- Altera's Product Selector tool is a parametric product selection tool that allows you to find and compare the specifications and features of Altera devices (and intellectual property and development kits) to help select the proper device for your application
  - www.altera.com/products/selector/psg-index.html
  - You can filter down to specific products based on search specifications, and then compare products side-by-side by filtering the criteria you choose for analysis.

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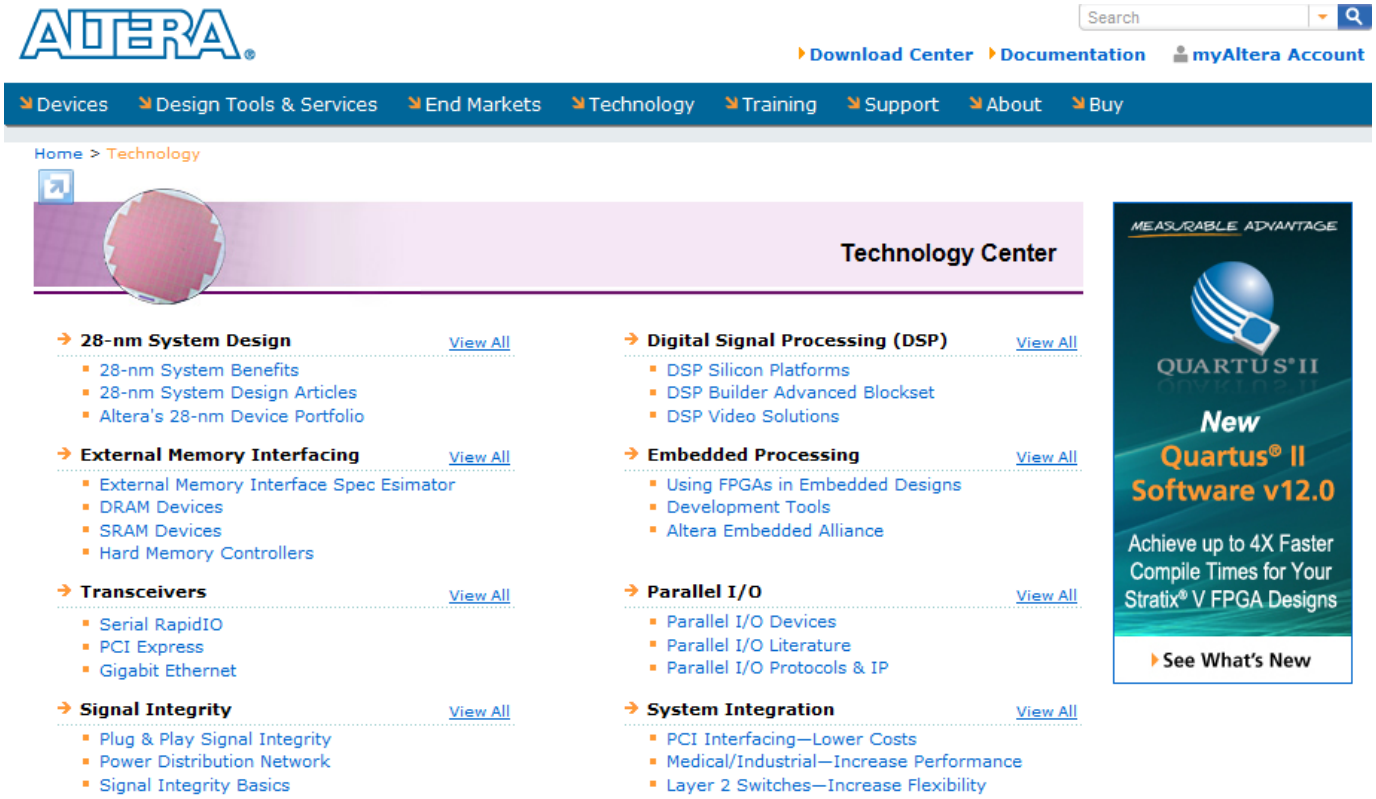
Technology Center

- Provides access to solutions for many common applications:
  www.altera.com/technology



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End Market Solutions

- Flexibility of Altera's programmable solutions mean that they are used in almost any end market
- To investigate Altera end market solutions, visit the **End Market Solutions** section on the web: www.altera.com/end-markets
  - This section includes:
    - Block diagrams and reference designs
    - Altera partner solutions
    - IP
    - Industry trends and consortia
    - Literature
    - Webcasts

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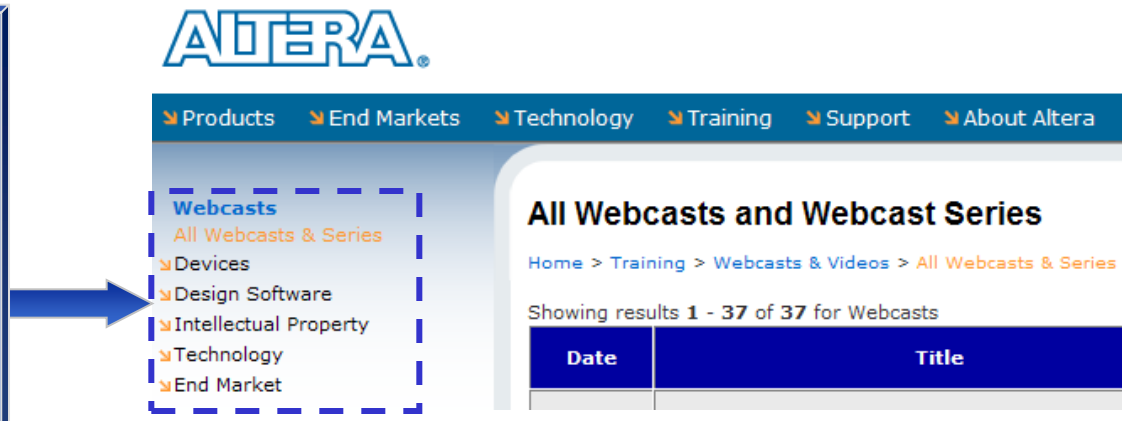
Webcasts

- View **Webcasts** on many useful topics: www.altera.com/education/webcasts/all/wc-index.jsp

Webcasts on the following topics:
- Devices
- Design software
- IP
- Technology
- End markets



- We recommend that you stay up-to-date by signing up for the free monthly Altera Webcast eNewsletter: www.altera.com/literature/signup/lit-signup.jsp

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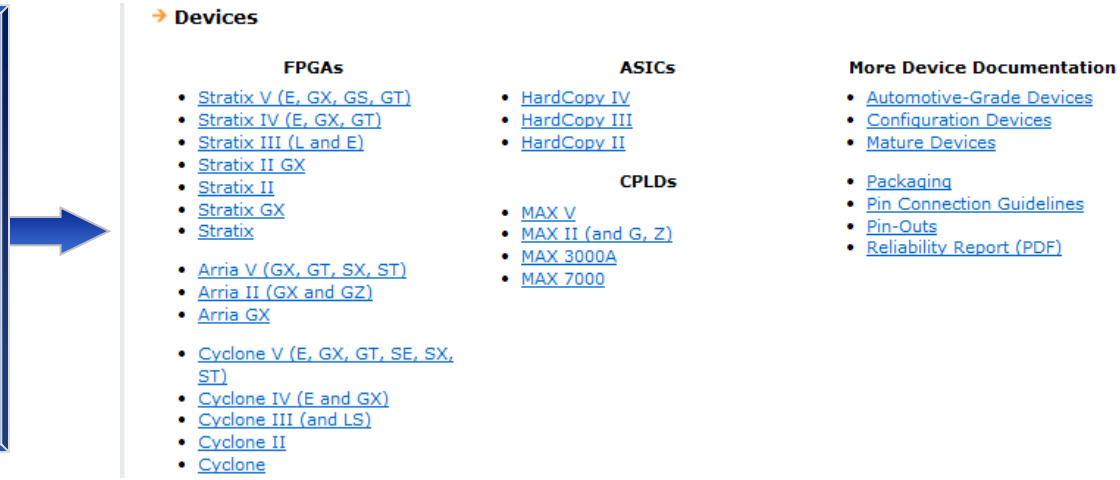
Literature

- Research Altera devices, IP and, software at the **Literature** site: www.altera.com/literature
- Device, software, and IP documentation link to **handbooks**

Handbooks pages contain literature such as:

- Device family details
- Application notes
- Data sheets
- User guides
- Related documentation



Devices

FPGAs

- Stratix V (E, GX, GS, GT)
- Stratix IV (E, GX, GT)
- Stratix III (L and E)
- Stratix II GX
- Stratix II
- Stratix GX
- Stratix
- Arria V (GX, GT, SX, ST)
- Arria II (GX and GZ)
- Arria GX
- Cyclone V (E, GX, GT, SE, SX, ST)
- Cyclone IV (E and GX)
- Cyclone III (and LS)
- Cyclone II
- Cyclone

ASICs

- HardCopy IV
- HardCopy III
- HardCopy II

CPLDs

- MAX V
- MAX II (and G, Z)
- MAX 3000A
- MAX 7000

More Device Documentation

- Automotive-Grade Devices
- Configuration Devices
- Mature Devices
- Packaging
- Pin Connection Guidelines
- Pin-Outs
- Reliability Report (PDF)

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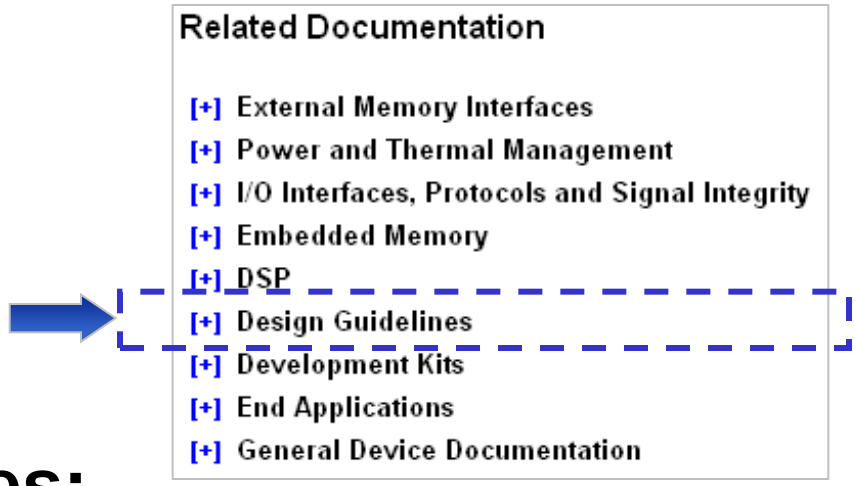
Literature

- **Design Guidelines** are at the bottom of most device handbook web pages under “Related Documentation”



- **Design guidelines:**
  - Improve productivity by helping you avoid common pitfalls
  - Help with device selection
  - Help early system planning (such as early power estimation)
  - Provide I/O and board considerations
  - Discuss related Quartus II software issues

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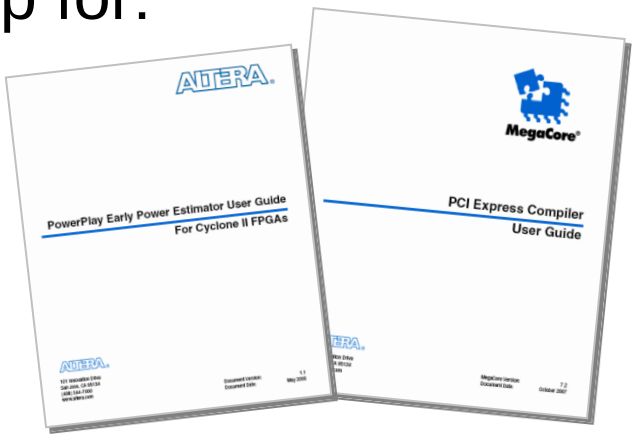
Literature

- **User guides** provide additional help for:
  - Devices
  - Using IP
  - Development kits

  www.altera.com/literature/lit-ug.jsp



- **White papers** are written by Altera experts to explain:
  - How a technology was developed
  - How a technology is used
  - Product operation for an application, market, or technology

  www.altera.com/literature/wp/lit-wp.jsp

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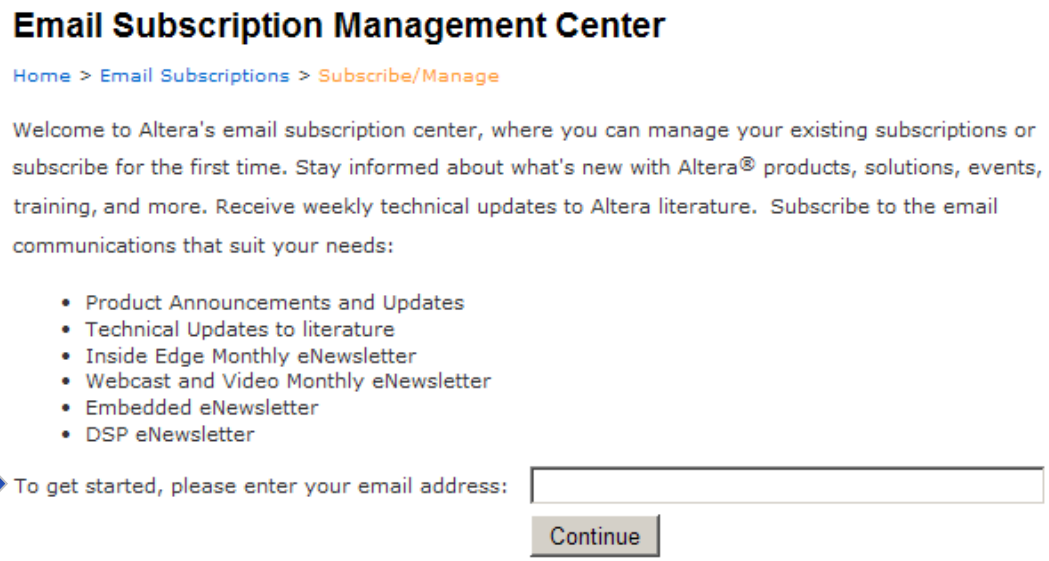
Literature

- Email Subscription Management Center: https://www.altera.com/subscriptions/email/signup/eml-index.jsp
- Receive weekly technical email updates to Altera literature and stay informed on products, solutions, events, training & more
  - Subscribe to the email communications that suit your needs:
    - Product Announcements
    - Technical Updates
    - eNewsletters

Enter email address to get started


Email Subscription Management Center
Home > Email Subscriptions > Subscribe/Manage
Welcome to Altera's email subscription center, where you can manage your existing subscriptions or subscribe for the first time. Stay informed about what's new with Altera® products, solutions, events, training, and more. Receive weekly technical updates to Altera literature. Subscribe to the email communications that suit your needs:
Product Announcements and Updates
Technical Updates to literature
Inside Edge Monthly eNewsletter
Webcast and Video Monthly eNewsletter
Embedded eNewsletter
DSP eNewsletter
To get started, please enter your email address:
Continue

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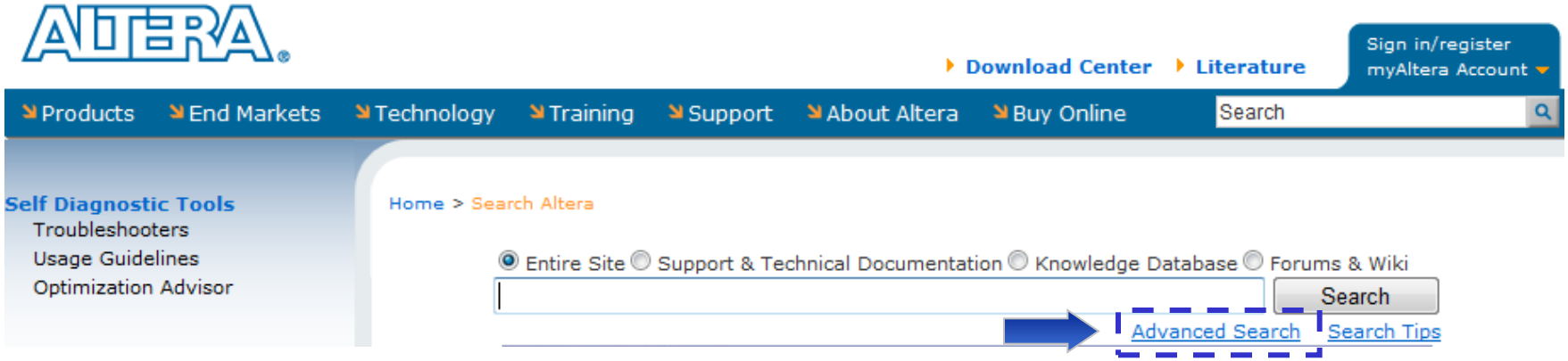
Searching for Information

1. Start your **Search** from the top of any Altera web page:
   - Enter a keyword in the search box
   - You can constrain the search to the knowledge database

2. A **Search** will return a results page
   - Click on **Advanced Search** to refine results



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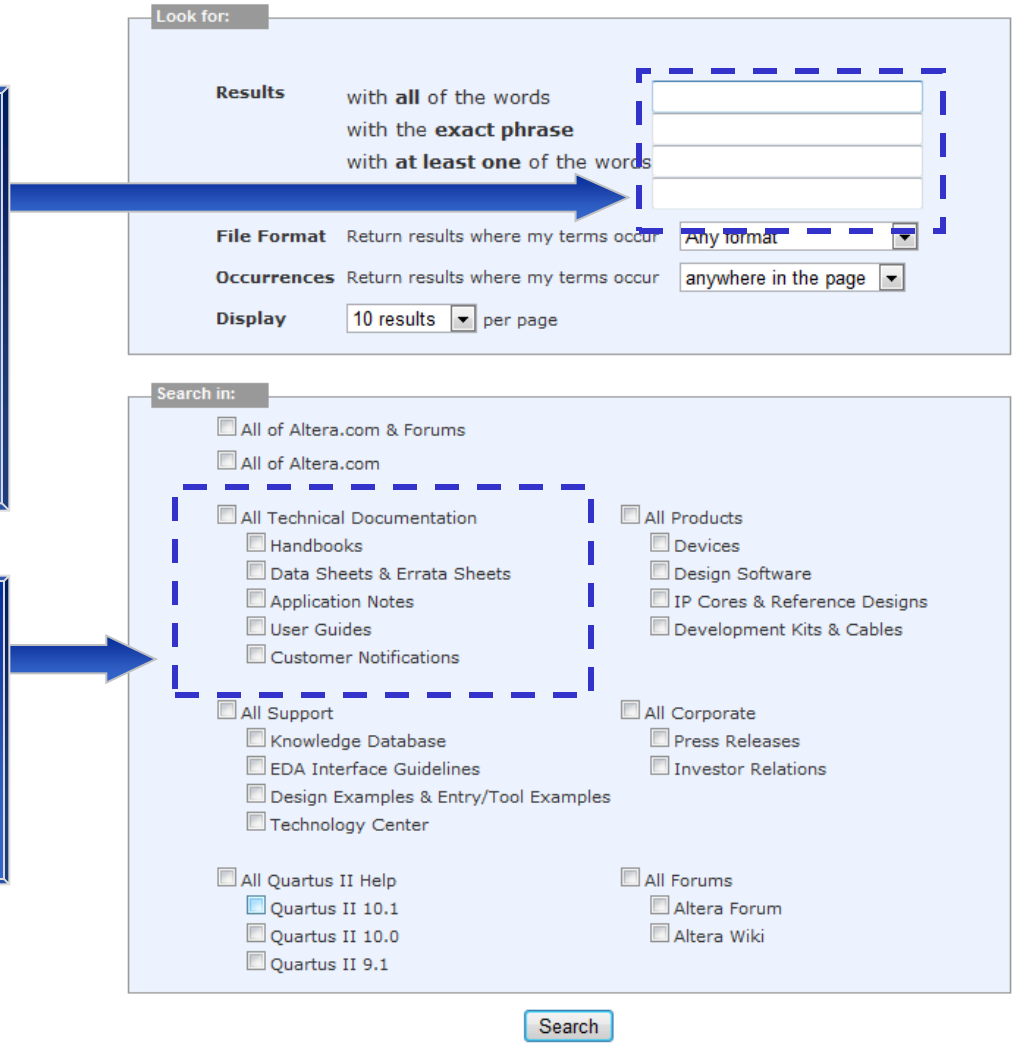
Searching for Information

3. The **Advanced Search** page will appear:

4. Enter the keywords you are searching for.

5. Check the boxes where you want to search.



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Contacting a Local Distributor

- If you cannot find the answer to your technical question using this document's resources, contact your local distributor www.altera.com/corporate/contact/sales/worldwide/con-sales-ww.jsp
- Your distributor has Altera-trained and certified field application engineers (FAEs) to answer your technical questions
- Your distributor offers a variety of services and values to help you use Altera products

ALTERA®
Certified Distributor FAE

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ALTERA®

Preparation

- This section covers:
  - Learn About Design Software and Tools
  - Downloading design software and tools
  - Getting a license
  - Altera training resources
    - Training curricula
    - Online demonstrations
    - Online training
    - Instructor-led training
    - Virtual Classrooms
  - Determining your design flow

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Learn About Design Software and Tools

- Learn about Altera's Quartus II design software: www.altera.com/products/software/quartus-ii/subscription-edition/qts-se-index.html
  - Addresses many common questions that arise when selecting software for the first time
- Decide if you need Quartus II Subscription Edition or Web Edition: www.altera.com/literature/po/ss_quartussevswe.pdf
- Installation and licensing resources are available to help you get up and running quickly

  www.altera.com/support/software/licensing/sof-qts-installation.html#help

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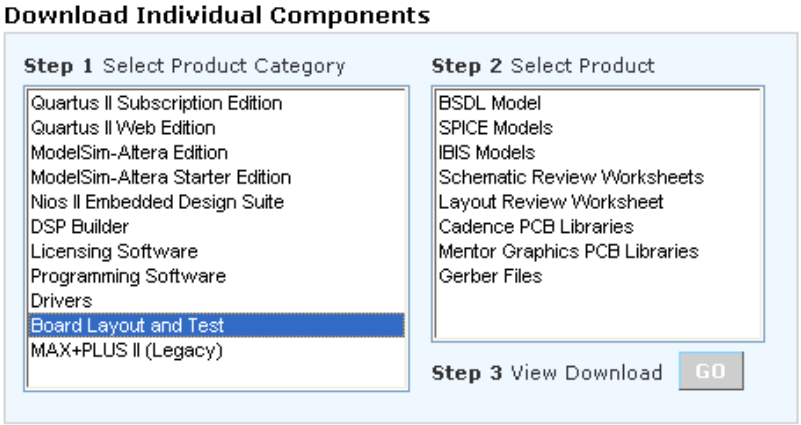
Download Design Software and Tools

- To download the latest design software and tools visit the **Download Center**:
  www.altera.com/download

Download the following design software of your choice:
Quartus® II software v12.0, which includes the Nios® II EDS and MegaCore® intellectual property (IP) library
Subscription Edition (30-day free trial)
Web Edition (free)—Compare with Subscription Edition (PDF)
Nios II EDS v12.0
ModelSim®-Altera® software
ModelSim-Altera Starter Edition (free)
ModelSim-Altera Edition—Compare with ModelSim-Altera Starter Edition
DSP Builder
Request previous versions of Quartus II software
Download Windows Version (14 MB)
Download Linux Version (21 MB)
Install Web Edition
Read Altera Software v12.0 Installation FAQ

- **Download Center** also allows you to download individual components and earlier software & tools versions:



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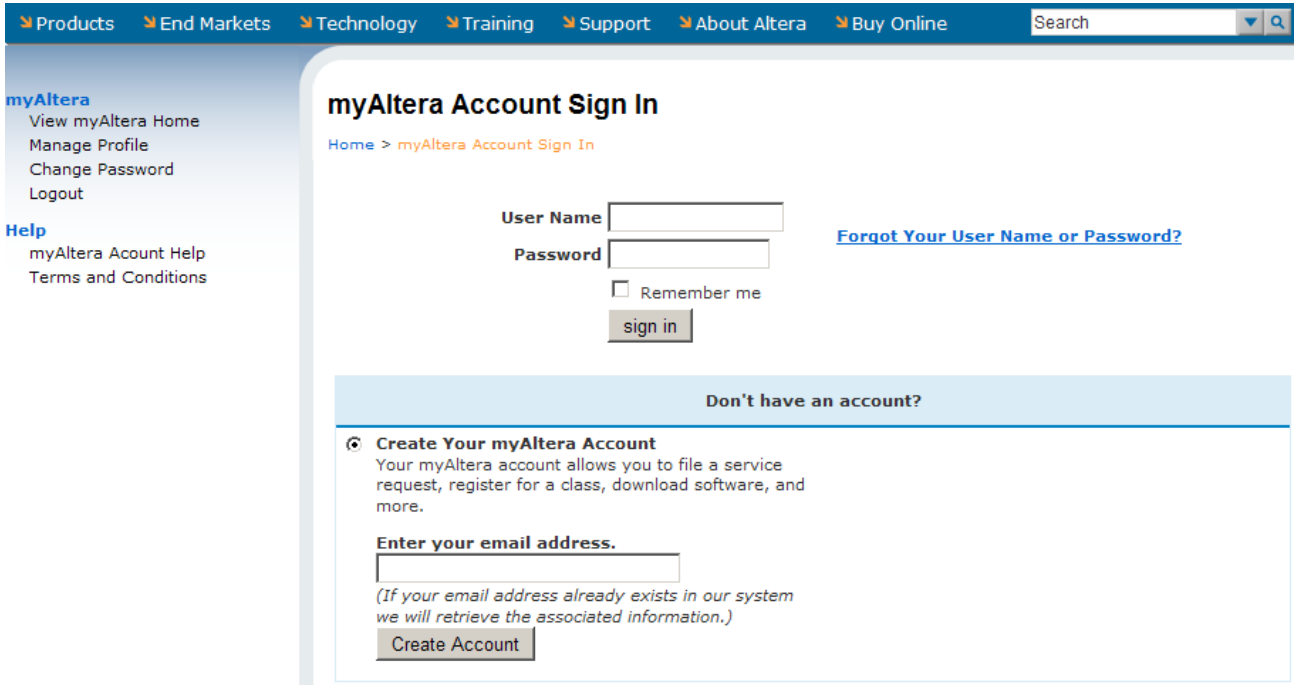
Get a License

- To obtain a software or IP license, visit the **Self Service Licensing Center** by signing into your ***myAltera*** account:
  www.altera.com/licensing



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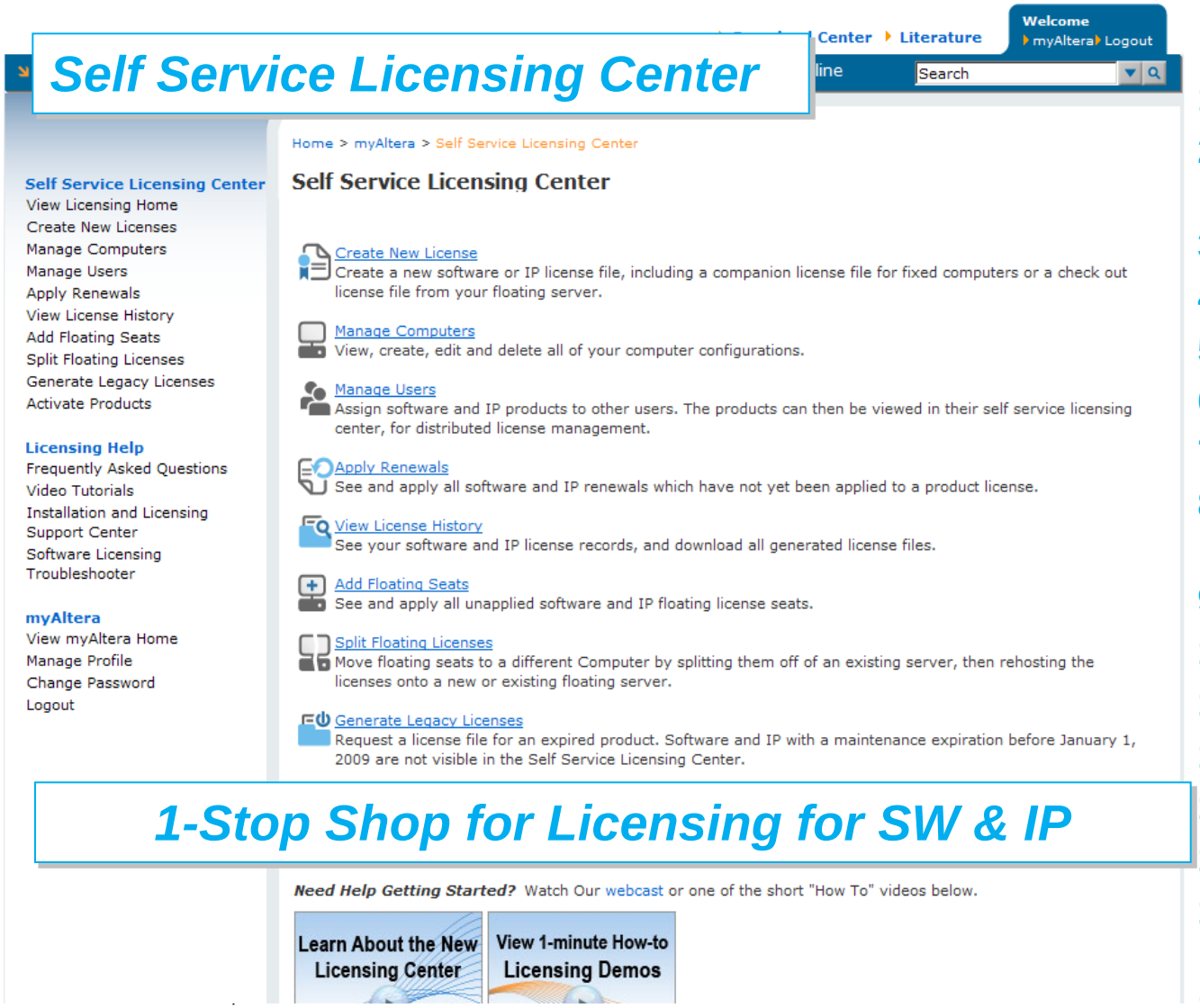
Get a License

Self Service Licensing Center


Center
Literature
Welcome
myAltera
Logout
line
Search
Home > myAltera > Self Service Licensing Center
Self Service Licensing Center
Self Service Licensing Center
View Licensing Home
Create New Licenses
Manage Computers
Manage Users
Apply Renewals
View License History
Add Floating Seats
Split Floating Licenses
Generate Legacy Licenses
Activate Products
Licensing Help
Frequently Asked Questions
Video Tutorials
Installation and Licensing Support Center
Software Licensing Troubleshooter
myAltera
View myAltera Home
Manage Profile
Change Password
Logout
Create New License
Create a new software or IP license file, including a companion license file for fixed computers or a check out license file from your floating server.
Manage Computers
View, create, edit and delete all of your computer configurations.
Manage Users
Assign software and IP products to other users. The products can then be viewed in their self service licensing center, for distributed license management.
Apply Renewals
See and apply all software and IP renewals which have not yet been applied to a product license.
View License History
See your software and IP license records, and download all generated license files.
Add Floating Seats
See and apply all unapplied software and IP floating license seats.
Split Floating Licenses
Move floating seats to a different Computer by splitting them off of an existing server, then rehosting the licenses onto a new or existing floating server.
Generate Legacy Licenses
Request a license file for an expired product. Software and IP with a maintenance expiration before January 1, 2009 are not visible in the Self Service Licensing Center.
Need Help Getting Started? Watch Our webcast or one of the short "How To" videos below.
Learn About the New Licensing Center
View 1-minute How-to Licensing Demos

1-Stop Shop for Licensing for SW & IP

Possibilities

1. View # of Licenses
2. View Maintenance Expiration Dates
3. View NIC IDs
4. View # of Seats
5. Generate Licenses
6. Re-host Licenses
7. Apply Renewals
8. Add Seat to Floating License
9. Split Floating License
10. View License History
11. Assign Users to License
12. Share Admin Privileges
13. Apply Dev Kit License
14. Companion Licenses
15. Check-out Floating License
16. View Bundle

Get a License

- Several types of licenses are available from the **Self Service Licensing Center**:
  - Quartus II Web Edition software - no license required
  - Quartus II Subscription Edition license
    - **Fixed** license
    - **Floating licenses** for PCs, or Linux workstations
  - MegaCore IP licenses
    - For MegaCore functions you download or purchase from Altera
  - DSP Builder license
  - Nios II license
- Software or IP must be purchased prior to licensing
- Installation and licensing resources are available to help you get up and running quickly

  www.altera.com/support/software/licensing/sof-qts-installation.html#help

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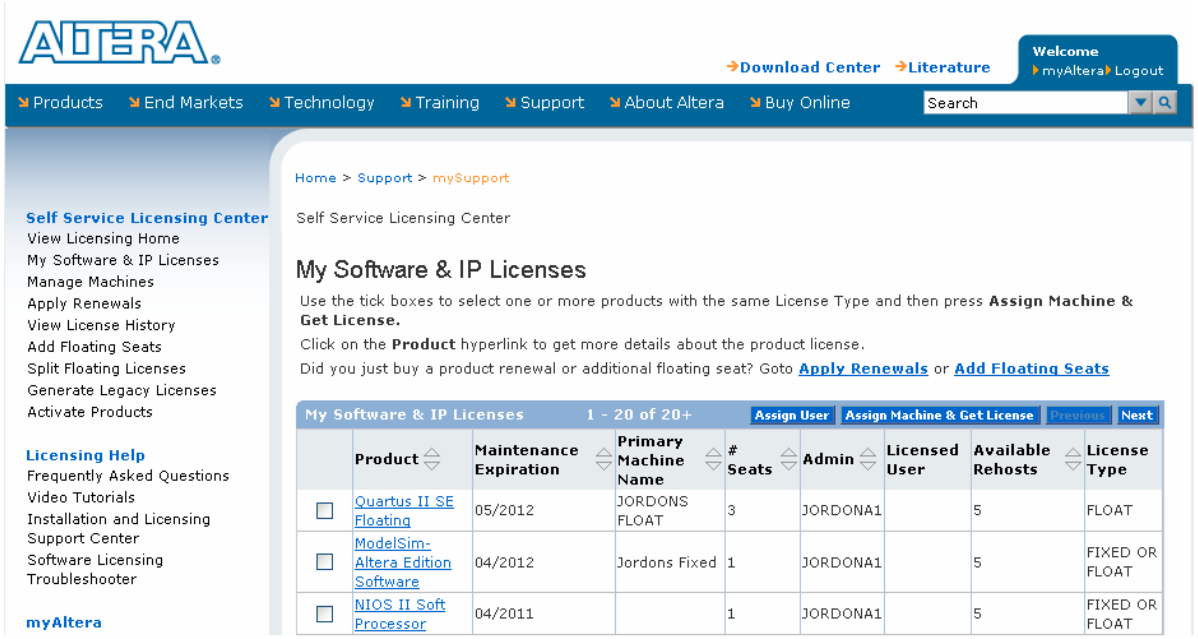
Get a License

- To assign a license to a product in your ***myAltera*** account
  - Check the box / boxes to the left of the products in question
  - Then assign a computer to the respective product and click **Get License**
- Once you have done this a license will be mailed to the email address you have linked to your ***myAltera*** account



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Altera Training Resources

- Whether you are looking for an intensive curriculum, or just to brush up on your skills, Altera offers training to meet your needs:
  www.altera.com/training
- Altera offers the following types of training:
  - **Online demonstrations**
    - Short and simple online demonstrations for the new user
  - **Online training**
    - Recorded presentations or demonstrations
  - **Instructor-led courses**
    - Taught live by an Altera instructor, usually with hands-on exercises
  - **Virtual Classrooms**
    - Live instructor-led training taught over the internet

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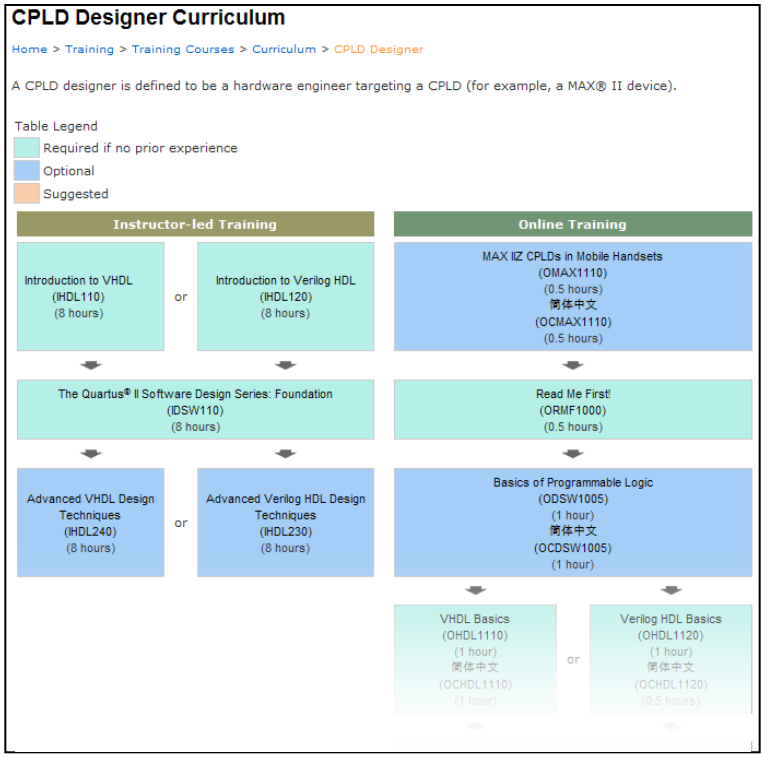
Training Curricula

- Altera has training curricula to help you identify the right training combination: www.altera.com/education/training/curriculum/trn-curriculum.html
  - CPLD designer
  - FPGA designer
  - ASIC-to-FPGA designer
  - HardCopy designer
  - DSP designer
  - SOC designer
  - Embedded hardware designer
  - Embedded software designer
  - Transceivers
  - Scripting


CPLD Designer Curriculum
Home > Training > Training Courses > Curriculum > CPLD Designer
A CPLD designer is defined to be a hardware engineer targeting a CPLD (for example, a MAX® II device).
Table Legend
Required if no prior experience
Optional
Suggested
Instructor-led Training
Online Training
Introduction to VHDL (IHDL110) (8 hours)
or
Introduction to Verilog HDL (IHDL120) (8 hours)
MAX IIZ CPLDs in Mobile Handsets (OMAX1110) (0.5 hours) 简体中文 (OCMAX1110) (0.5 hours)
The Quartus® II Software Design Series: Foundation (IDSW110) (8 hours)
Read Me First! (ORMF1000) (0.5 hours)
Advanced VHDL Design Techniques (IHDL240) (8 hours)
or
Advanced Verilog HDL Design Techniques (IHDL230) (8 hours)
Basics of Programmable Logic (ODSW1005) (1 hour) 简体中文 (OCDSW1005) (1 hour)
VHDL Basics (OHDL1110) (1 hour) 简体中文 (OCHDL1110) (1 hour)
or
Verilog HDL Basics (OHDL1120) (1 hour) 简体中文 (OCHDL1120) (0.5 hours)

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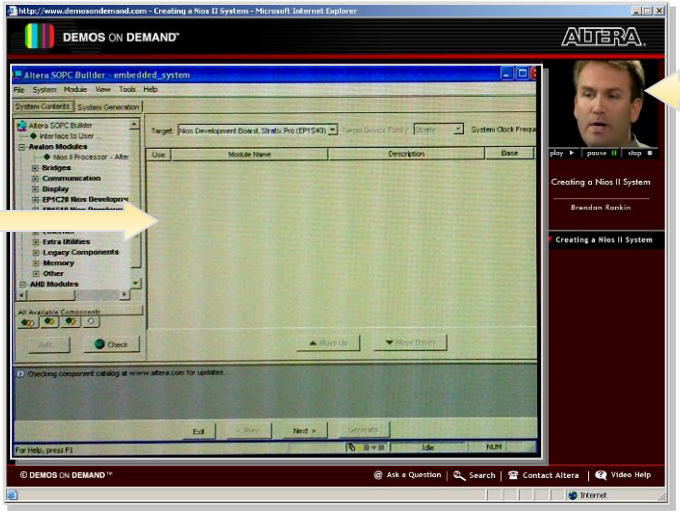
Online Demonstrations

- To help you get the most out of the tools and IP, the Demonstration Center provides short, no-cost, hands-on tutorials for popular topics: www.altera.com/education/demonstrations
  - To play an online demonstration, select a training then click the “View Now” icon

  - Online demonstrations are an easy-to-follow combination of step-by-step animated tutorials with audio and video

Animations take you through each step so you know what to expect when you do it yourself



Audio and video clearly explain each step that is being demonstrated

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Online Demonstrations

- The **Demonstration Center** has two types of online demonstrations:
  - **Quartus II software online demonstrations:**
  - www.altera.com/education/demonstrations/online/design-software/onl-design-software-demos.html
    - Show how easy it is to get started using Quartus II software
    - If you are just starting out with Quartus II software, these demonstrations familiarize you with the design software to help you implement, optimize, and verify your designs
  - **Nios II processor online demonstrations:**
  - www.altera.com/education/demonstrations/online/embedded-processor/onl-nios2.html
    - Take you through Nios II processor design topics such as generating hardware, interfacing to user logic, using direct memory access (DMA), creating custom instructions, developing software, using the Nios II integrated development environment (IDE), debugging software, and programming flash.

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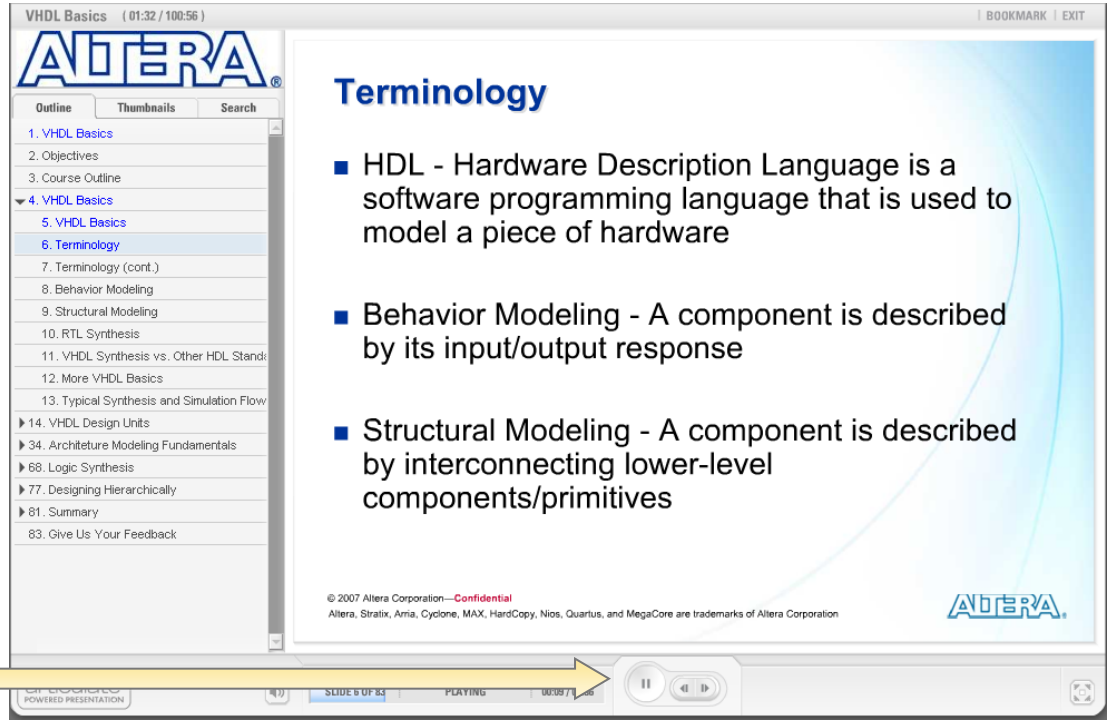
Online Training

- To learn more about Altera design software features, IP, or devices, search the **Online Training** courses: www.altera.com/training/online
  - Courses are typically 1 to 2 hours long and feature presentations and some demonstrations
  - No cost

Altera instructors talk you through the slides—you control the pace of the recorded training material


VHDL Basics (01:32 / 100:56)
BOOKMARK | EXIT
Outline
Thumbnails
Search
1. VHDL Basics
2. Objectives
3. Course Outline
4. VHDL Basics
5. VHDL Basics
6. Terminology
7. Terminology (cont.)
8. Behavior Modeling
9. Structural Modeling
10. RTL Synthesis
11. VHDL Synthesis vs. Other HDL Stand
12. More VHDL Basics
13. Typical Synthesis and Simulation Flow
14. VHDL Design Units
34. Architeture Modeling Fundamentals
68. Logic Synthesis
77. Designing Hierarchically
81. Summary
83. Give Us Your Feedback
Terminology
HDL - Hardware Description Language is a software programming language that is used to model a piece of hardware
Behavior Modeling - A component is described by its input/output response
Structural Modeling - A component is described by interconnecting lower-level components/primitives
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PLAYING

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Instructor-Led Training

- Instructor-led training will help you get the most from Altera tools and devices:
  - Taught in North America by an Altera instructor who can answer your questions.
  - Courses cost $495 per person per day in North America
  - View and sign up for upcoming North America classes by clicking on this link:
    www.altera.com/servlets/searchcourse?coursetype=Instructor-Led
  - Customers outside of North America can be trained by an Altera Training Partner:
    www.altera.com/education/training/partners/trn-partners.jsp

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Virtual Classrooms

- Identical content to the instructor-led class of the same name:
  - Interact live with an Altera instructor
  - Audio provided through telephone conference call
  - Install Altera software to complete hands-on lab exercises
  - Classes taught in 4.5 hour sessions across consecutive days
- Cost is $495 per person for traditional 1-day classes and $990 per person for the traditional 2-day classes
  - Training credits may also be used as per in-person classes
  - www.altera.com/servlets/searchcourse?coursetype=Instructor-Led+%2F+Virtual+Class

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Design Flows

- When starting a new design, understanding the design flow makes you more efficient
  - Methodology
  - Supporting documentation
- Each flow provides examples of the steps recommended for project success:
  - **FPGA and CPLD design flow**
    www.altera.com/products/software/flows/fpga/flo-fpga.html
  - **HardCopy ASIC design flow**
    www.altera.com/products/software/flows/asic/qts-structured_asic.html
  - **DSP design flow**
    www.altera.com/technology/dsp/dsp-builder/dsp-simulink.html

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Support

- This section covers:
  - Knowledge Base
  - Troubleshooters and self-help tools
  - Altera Forum
  - Nios Forum
  - Altera Wiki
  - mySupport

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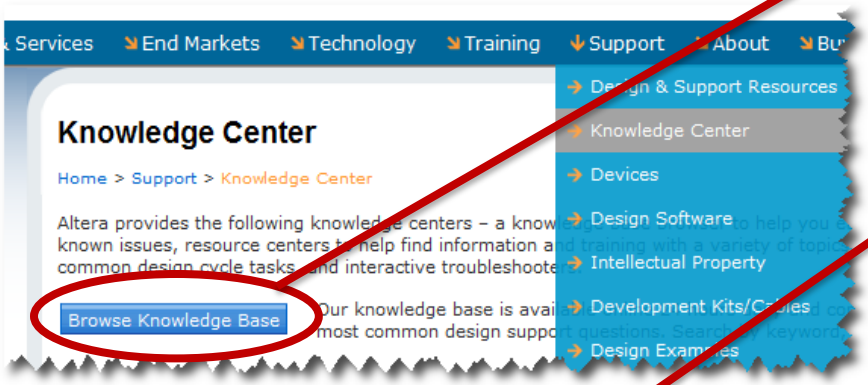
Knowledge Base

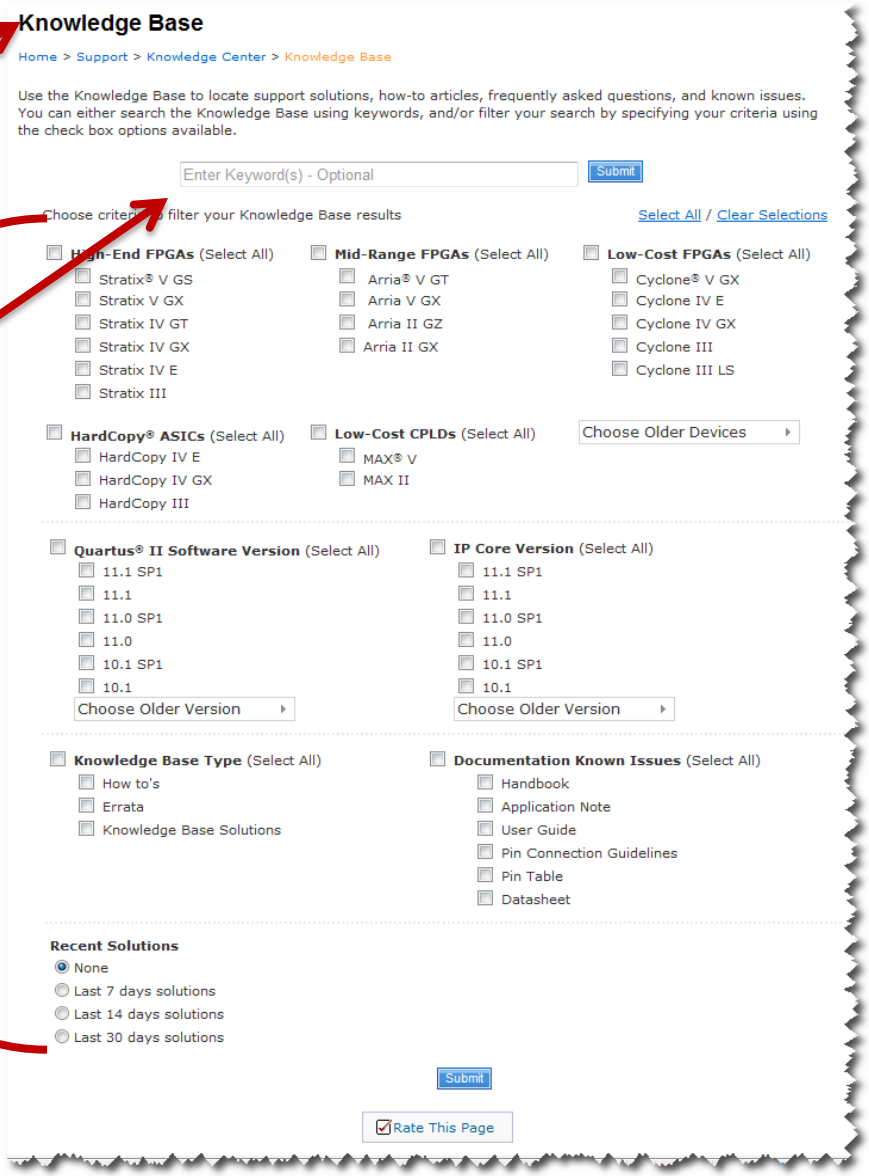
- Many of your questions are answered in the **knowledge base:**
  http://www.altera.com/support/kdb/kdb-search.jsp



Search with keywords

And filters for any combination of

- Product Family
- Quartus II Software Version
- IP Core Version
- Knowledge Base Type
- Documentation Known Issues
- Recent Solutions



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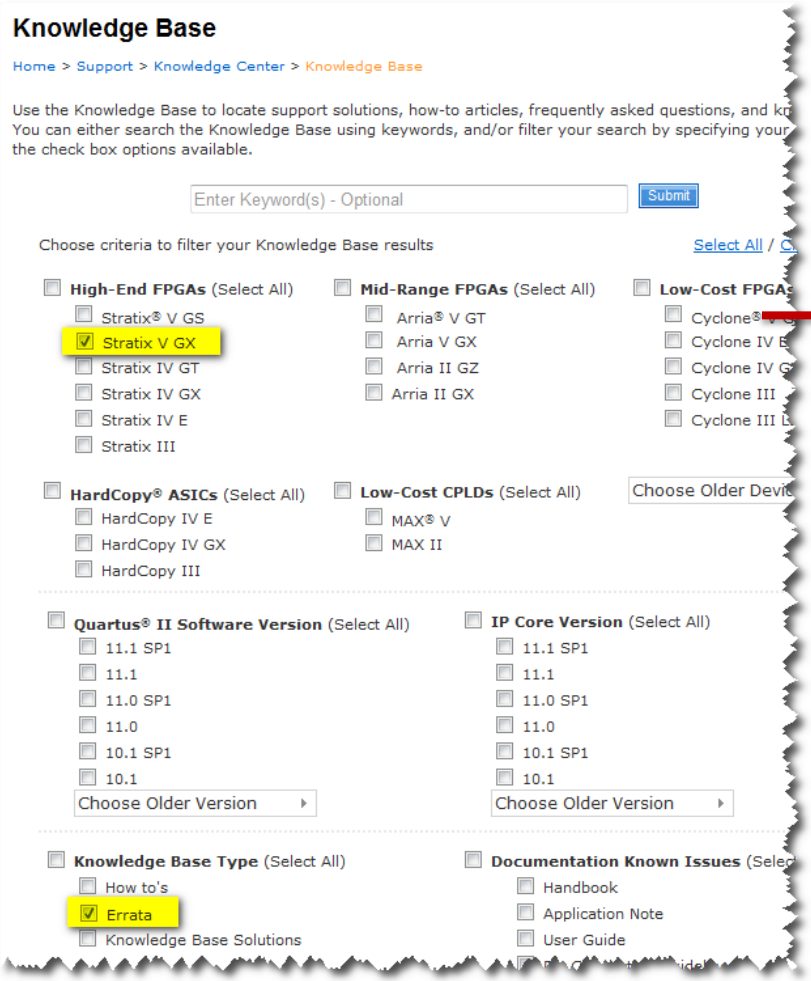
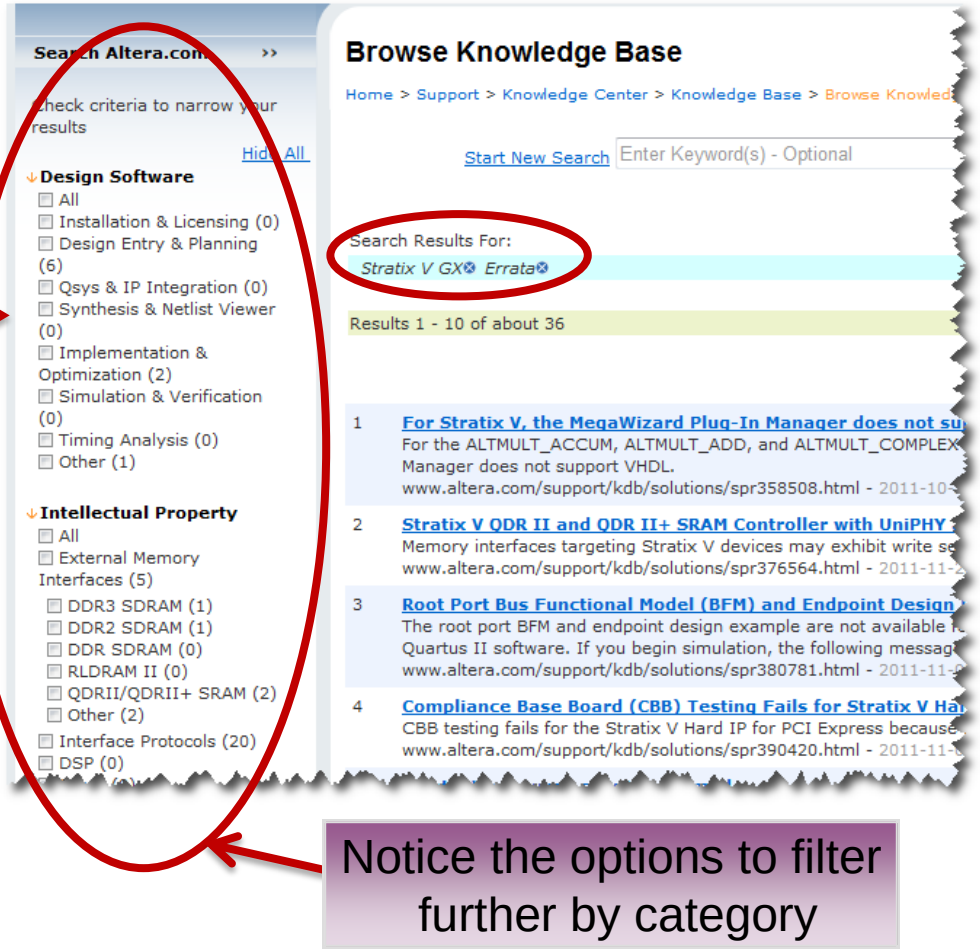
Knowledge Base - Example

- Stratix V GX Errata – Just 2 clicks!




Search Altera.com
Check criteria to narrow your results
Hide All
Design Software
All
Installation & Licensing (0)
Design Entry & Planning (6)
Qsys & IP Integration (0)
Synthesis & Netlist Viewer (0)
Implementation & Optimization (2)
Simulation & Verification (0)
Timing Analysis (0)
Other (1)
Intellectual Property
All
External Memory Interfaces (5)
DDR3 SDRAM (1)
DDR2 SDRAM (1)
DDR SDRAM (0)
RLDRAM II (0)
QDRII/QDRII+ SRAM (2)
Other (2)
Interface Protocols (20)
DSP (0)
Browse Knowledge Base
Home > Support > Knowledge Center > Knowledge Base > Browse Knowled
Start New Search
Enter Keyword(s) - Optional
Search Results For:
Stratix V GX Errata
Results 1 - 10 of about 36
1 For Stratix V, the MegaWizard Plug-In Manager does not su
For the ALTMULT_ACCUM, ALTMULT_ADD, and ALTMULT_COMPLEX
Manager does not support VHDL.
www.altera.com/support/kdb/solutions/spr358508.html - 2011-10-
2 Stratix V QDR II and QDR II+ SRAM Controller with UniPHY
Memory interfaces targeting Stratix V devices may exhibit write se
www.altera.com/support/kdb/solutions/spr376564.html - 2011-11-
3 Root Port Bus Functional Model (BFM) and Endpoint Design
The root port BFM and endpoint design example are not available
Quartus II software. If you begin simulation, the following messag
www.altera.com/support/kdb/solutions/spr380781.html - 2011-11-
4 Compliance Base Board (CBB) Testing Fails for Stratix V Ha
CBB testing fails for the Stratix V Hard IP for PCI Express because
www.altera.com/support/kdb/solutions/spr390420.html - 2011-11-

Notice the options to filter further by category

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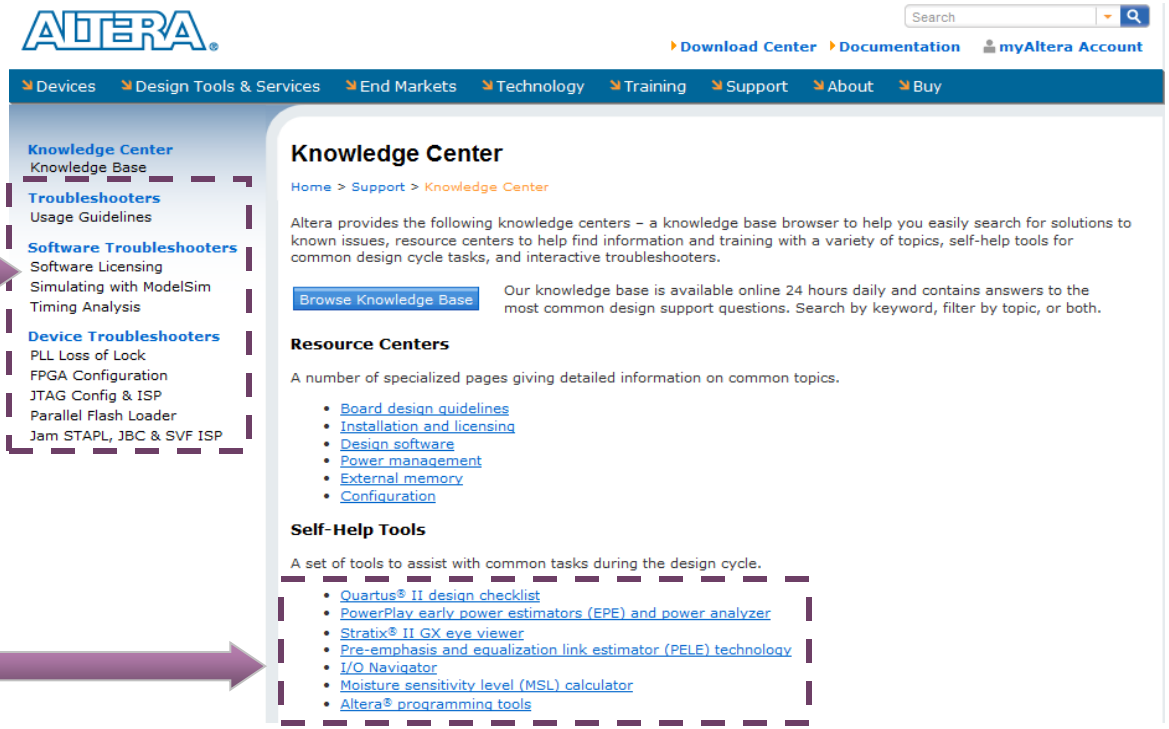
Troubleshooters and Self-Help

- **Troubleshooters** on the **knowledge database** web page solve common software, licensing, and device technical problems: www.altera.com/support/kdb

Links to **troubleshooters**
- Software
- Devices

Links to other **self-help** tools can address many common issues


Search
Download Center
Documentation
myAltera Account
Devices
Design Tools & Services
End Markets
Technology
Training
Support
About
Buy
Knowledge Center
Knowledge Base
Troubleshooters
Usage Guidelines
Software Troubleshooters
Software Licensing
Simulating with ModelSim
Timing Analysis
Device Troubleshooters
PLL Loss of Lock
FPGA Configuration
JTAG Config & ISP
Parallel Flash Loader
Jam STAPL, JBC & SVF ISP
Knowledge Center
Home > Support > Knowledge Center
Altera provides the following knowledge centers – a knowledge base browser to help you easily search for solutions to known issues, resource centers to help find information and training with a variety of topics, self-help tools for common design cycle tasks, and interactive troubleshooters.
Browse Knowledge Base
Our knowledge base is available online 24 hours daily and contains answers to the most common design support questions. Search by keyword, filter by topic, or both.
Resource Centers
A number of specialized pages giving detailed information on common topics.
Board design guidelines
Installation and licensing
Design software
Power management
External memory
Configuration
Self-Help Tools
A set of tools to assist with common tasks during the design cycle.
Quartus® II design checklist
PowerPlay early power estimators (EPE) and power analyzer
Stratix® II GX eye viewer
Pre-emphasis and equalization link estimator (PELE) technology
I/O Navigator
Moisture sensitivity level (MSL) calculator
Altera® programming tools

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Altera Forum

- Altera Forum brings Altera users together to learn from each other
  - Users share projects, news, and ideas about Altera products to make your experience with Altera products better

www.alteraforum.com

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Nios Sub-Forum

- Nios Sub-Forum supports the Nios developer community
  - Also covers operating systems, software, and hardware acceleration

www.alteraforum.com
> Nios Forum

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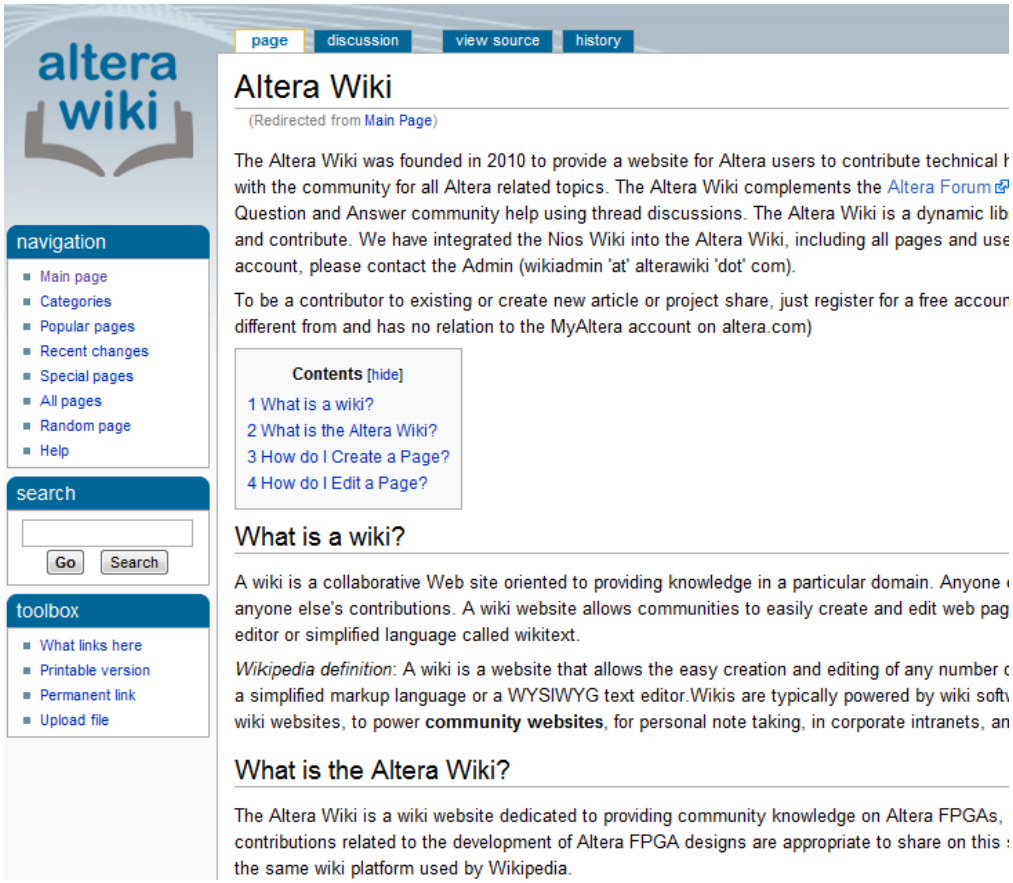
Altera Wiki

- Altera Wiki is a website dedicated to sharing community content on Altera FPGAs, technologies, and tools, and their usage
  - Altera community can create, share, and update articles and projects
  - Nios Wiki pages have been integrated into the Altera Wiki
  - Note: Altera does not warrant the validity of content posted onto Wiki and does not support questions about Altera Wiki content

www.alterawiki.com


altera wiki
page
discussion
view source
history
Altera Wiki
(Redirected from Main Page)
The Altera Wiki was founded in 2010 to provide a website for Altera users to contribute technical k
with the community for all Altera related topics. The Altera Wiki complements the Altera Forum
Question and Answer community help using thread discussions. The Altera Wiki is a dynamic lib
and contribute. We have integrated the Nios Wiki into the Altera Wiki, including all pages and use
account, please contact the Admin (wikiadmin 'at' alterawiki 'dot' com).
To be a contributor to existing or create new article or project share, just register for a free accour
different from and has no relation to the MyAltera account on altera.com)
navigation
Main page
Categories
Popular pages
Recent changes
Special pages
All pages
Random page
Help
search
Go
Search
toolbox
What links here
Printable version
Permanent link
Upload file
Contents [hide]
1 What is a wiki?
2 What is the Altera Wiki?
3 How do I Create a Page?
4 How do I Edit a Page?
What is a wiki?
A wiki is a collaborative Web site oriented to providing knowledge in a particular domain. Anyone
anyone else's contributions. A wiki website allows communities to easily create and edit web pag
editor or simplified language called wikitext.
Wikipedia definition: A wiki is a website that allows the easy creation and editing of any number
a simplified markup language or a WYSIWYG text editor.Wikis are typically powered by wiki soft
wiki websites, to power community websites, for personal note taking, in corporate intranets, an
What is the Altera Wiki?
The Altera Wiki is a wiki website dedicated to providing community knowledge on Altera FPGAs,
contributions related to the development of Altera FPGA designs are appropriate to share on this
the same wiki platform used by Wikipedia.

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mySupport

- If you cannot find the answer to your issue using the resources covered in this document, use **mySupport**: www.altera.com/mySupport
- **mySupport** is a web interface to submit technical questions or issues in a **service request** (SR)
  - Use **mySupport** to update, view, and close previously submitted SRs
  - Each SR is assigned to a factory specialist who takes ownership of your issue and works with you to solve your problem
  - SR progress is reported through email, and you will receive an email notification when your SR is updated
  - Access your myAltera account 24/7 to view SR updates
- To log into **mySupport**, you need an **myAltera** account

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mySupport

To view support options or create a **Service Request:**

1. Go to the **mySupport** website: www.altera.com/mysupport

2. Log in to **mySupport** using your **myAltera** account information

3. The **mySupport** website will appear

mySupport
Welcome, DAVID
Get resources to help me design with Altera products or address a technical question or issue.
Get Design & Support Resources
Visit the Altera Forum to discuss issues, ask questions, and share solutions related to Altera products. Note: This will require a unique registration and login.
Post a Thread on Altera Forum
Use the Self-Service Licensing Center to create a license file and/or manage users and computers for software, IP, and development kit licenses.
Get and Manage Licenses
Submit a problem resolution request. Note: The Altera web resources will automatically be searched for information that may provide an immediate solution.
Create Service Request

4. Click on **"Create a Service Request"**

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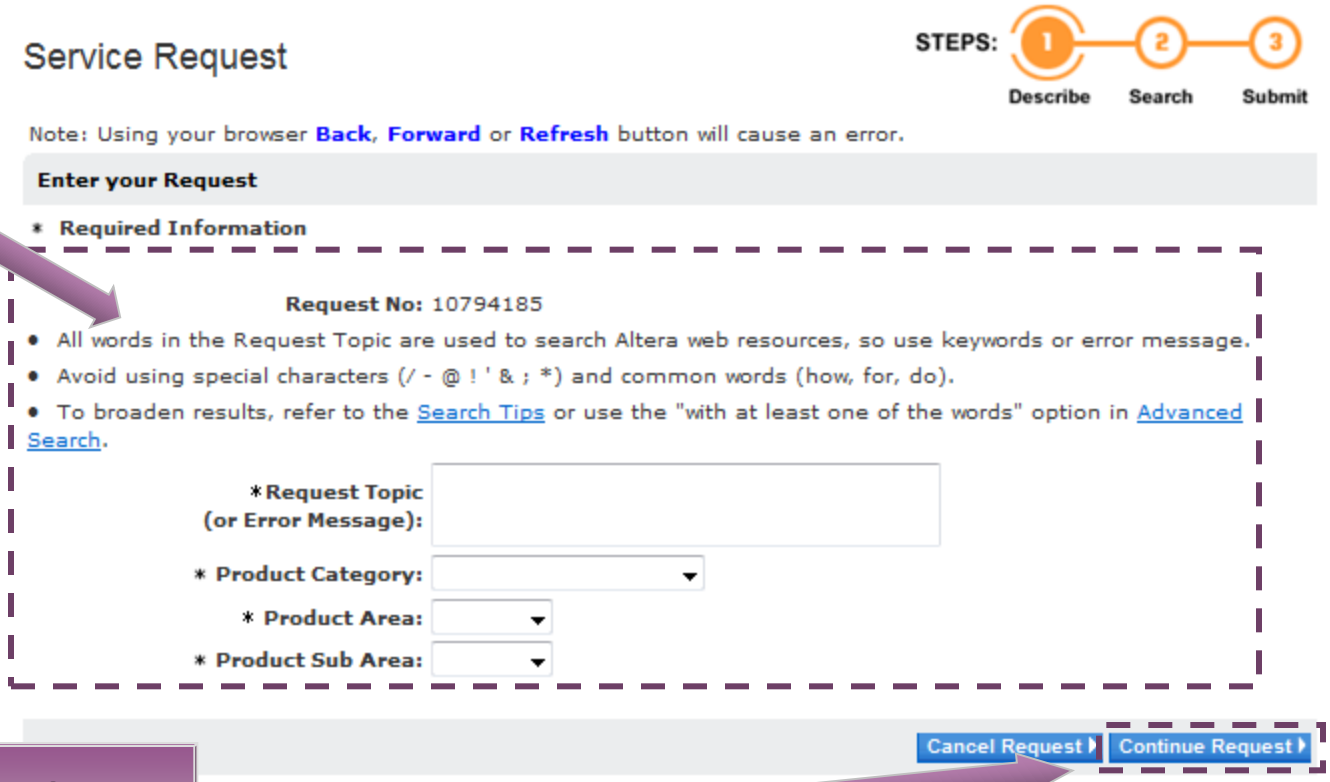
mySupport

5. Read instructions and use keywords to describe topic


Service Request
STEPS:
1
2
3
Describe
Search
Submit
Note: Using your browser Back, Forward or Refresh button will cause an error.
Enter your Request
* Required Information
Request No: 10794185
All words in the Request Topic are used to search Altera web resources, so use keywords or error message.
Avoid using special characters (/ - @ ! ' & ; *) and common words (how, for, do).
To broaden results, refer to the Search Tips or use the "with at least one of the words" option in Advanced Search.
*Request Topic (or Error Message):
* Product Category:
* Product Area:
* Product Sub Area:
Cancel Request
Continue Request

6. Click **"Continue Request"**

7. This will take you to the **Search Before Submit** page

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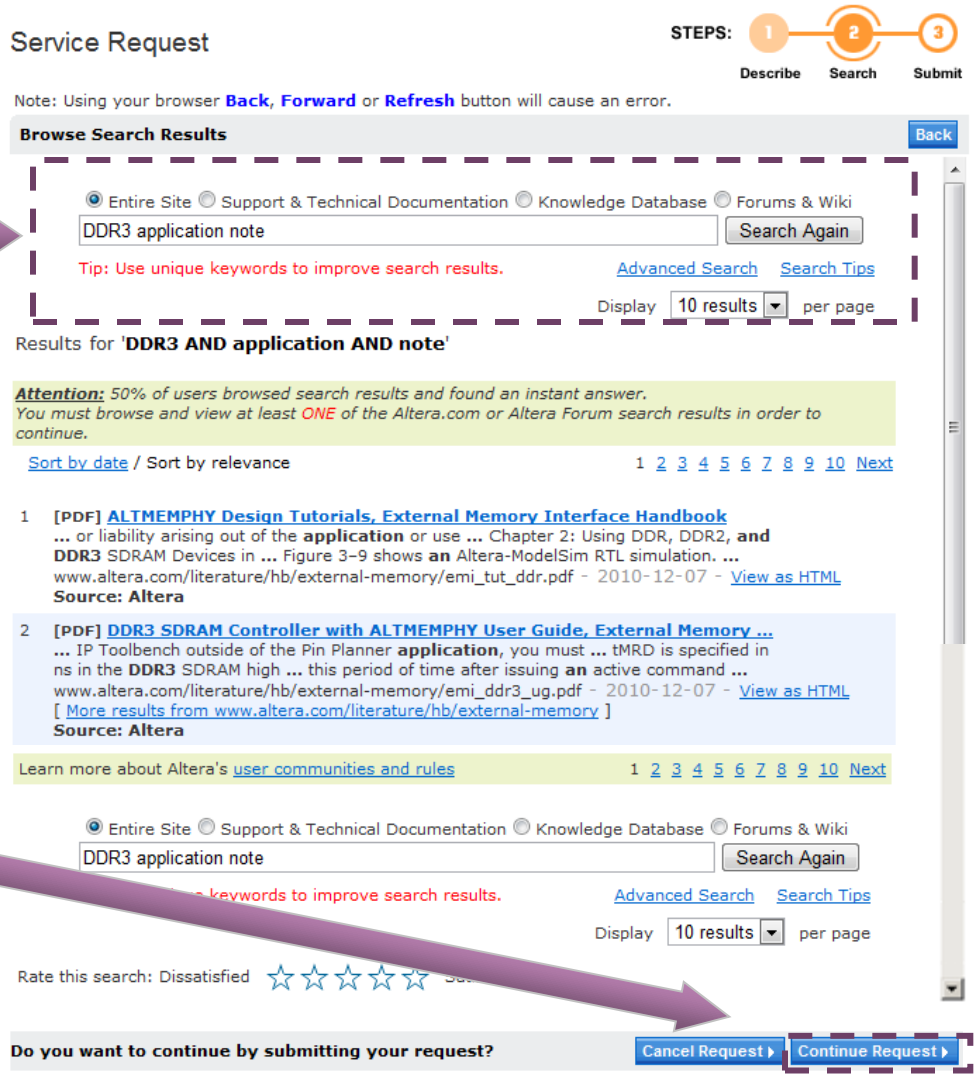
mySupport

8. Search Altera database for a suitable solution

9. If you cannot resolve the issue through search click **“Continue Request”**


Service Request
STEPS: 1 Describe 2 Search 3 Submit
Note: Using your browser Back, Forward or Refresh button will cause an error.
Browse Search Results
Back
Entire Site Support & Technical Documentation Knowledge Database Forums & Wiki
DDR3 application note
Search Again
Tip: Use unique keywords to improve search results.
Advanced Search Search Tips
Display 10 results per page
Results for 'DDR3 AND application AND note'
Attention: 50% of users browsed search results and found an instant answer.
You must browse and view at least ONE of the Altera.com or Altera Forum search results in order to continue.
Sort by date / Sort by relevance
1 2 3 4 5 6 7 8 9 10 Next
1 [PDF] ALTMEMPHY Design Tutorials, External Memory Interface Handbook
... or liability arising out of the application or use ... Chapter 2: Using DDR, DDR2, and DDR3 SDRAM Devices in ... Figure 3–9 shows an Altera-ModelSim RTL simulation. ...
www.altera.com/literature/hb/external-memory/emi_tut_ddr.pdf - 2010-12-07 - View as HTML
Source: Altera
2 [PDF] DDR3 SDRAM Controller with ALTMEMPHY User Guide, External Memory ...
... IP Toolbench outside of the Pin Planner application, you must ... tMRD is specified in ns in the DDR3 SDRAM high ... this period of time after issuing an active command ...
www.altera.com/literature/hb/external-memory/emi_ddr3_ug.pdf - 2010-12-07 - View as HTML
[More results from www.altera.com/literature/hb/external-memory]
Source: Altera
Learn more about Altera's user communities and rules
1 2 3 4 5 6 7 8 9 10 Next
Entire Site Support & Technical Documentation Knowledge Database Forums & Wiki
DDR3 application note
Search Again
keywords to improve search results.
Advanced Search Search Tips
Display 10 results per page
Rate this search: Dissatisfied
Do you want to continue by submitting your request?
Cancel Request
Continue Request

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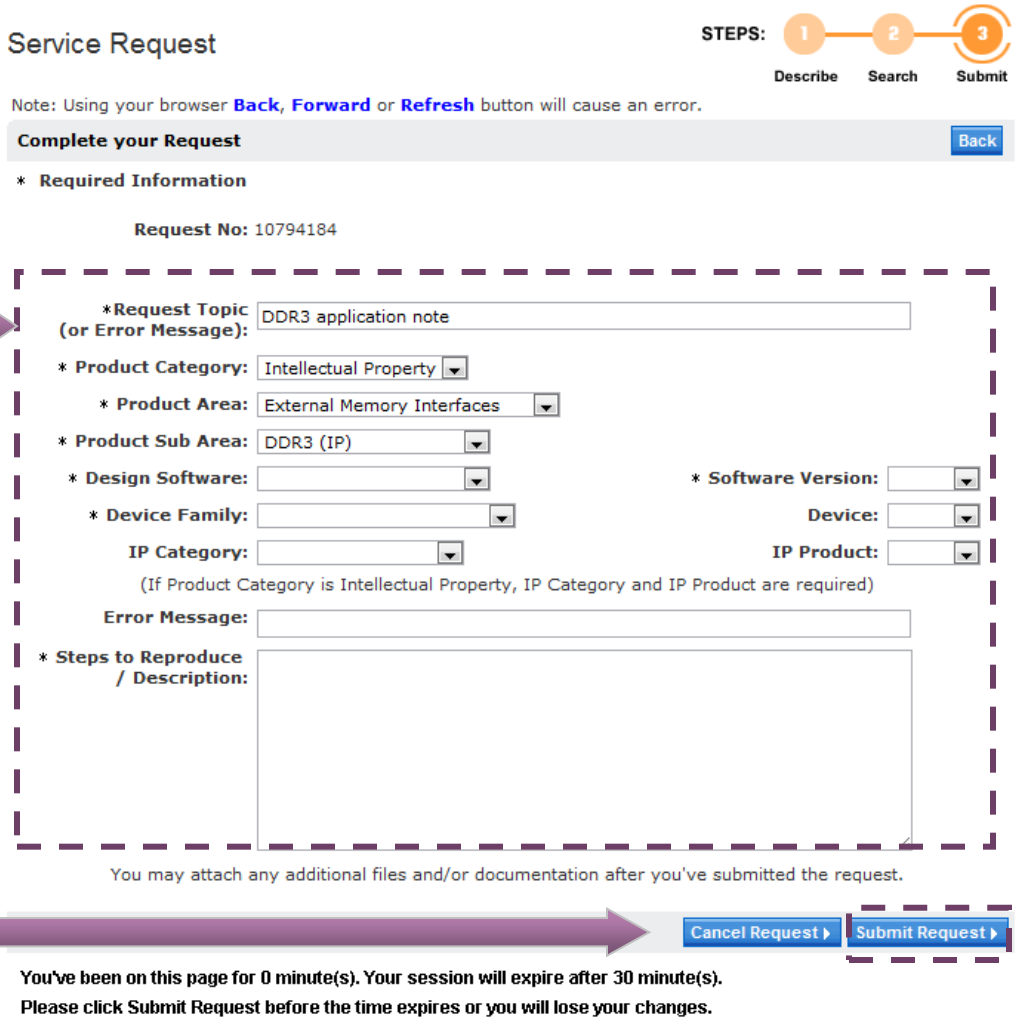
mySupport

10. Complete the entire form

11. Click **“Submit Request”**



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mySupport

- Getting better answers faster
  - Make sure you can **clearly and precisely describe your problem**
    - Describing the problem well helps the application engineer (AE) provide faster, more accurate support
  - Details to include in the Service Request:
    - **Tool flow** (including software version)
    - **Products and IP** involved
    - How to **duplicate the issue**
    - **Error** (screen shots, log files, and other useful data)
    - **Expected result**
    - Actions already taken
  - Sometimes error message is not enough for the AE to resolve the issue
    - It may be necessary to obtain the design files to duplicate the issue
    - Some customers cannot release their design to Altera
      - Can a test case be generated that has the same problem?
  - **Monitor the SR progress** periodically
    - AE may ask clarifying questions

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Design Resources

- This section covers:
  - Ensuring the success of your project
  - Design and support resources guide
  - Initial design review
  - Calculating device power dissipation
  - Pin connections
  - Design services partners
  - References

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Ensuring the Success of Your Project

- Educate yourself and your team
  - Start with the resources identified in this document
  - Minimize delays and redesign due to incorrect product assumptions
  - Develop a highly skilled team
- Anticipate and keep issues out of your critical path
  - Understand your design flow
  - Evaluate existing boards and solutions
  - Plan your project for maximum efficiency
  - Orchestrate internal resources and external partners as required
- Conduct an initial design review
  - A proactive design review may reduce significant design mistakes before they occur
  - Contact your distributor FAE for an Initial Design Review

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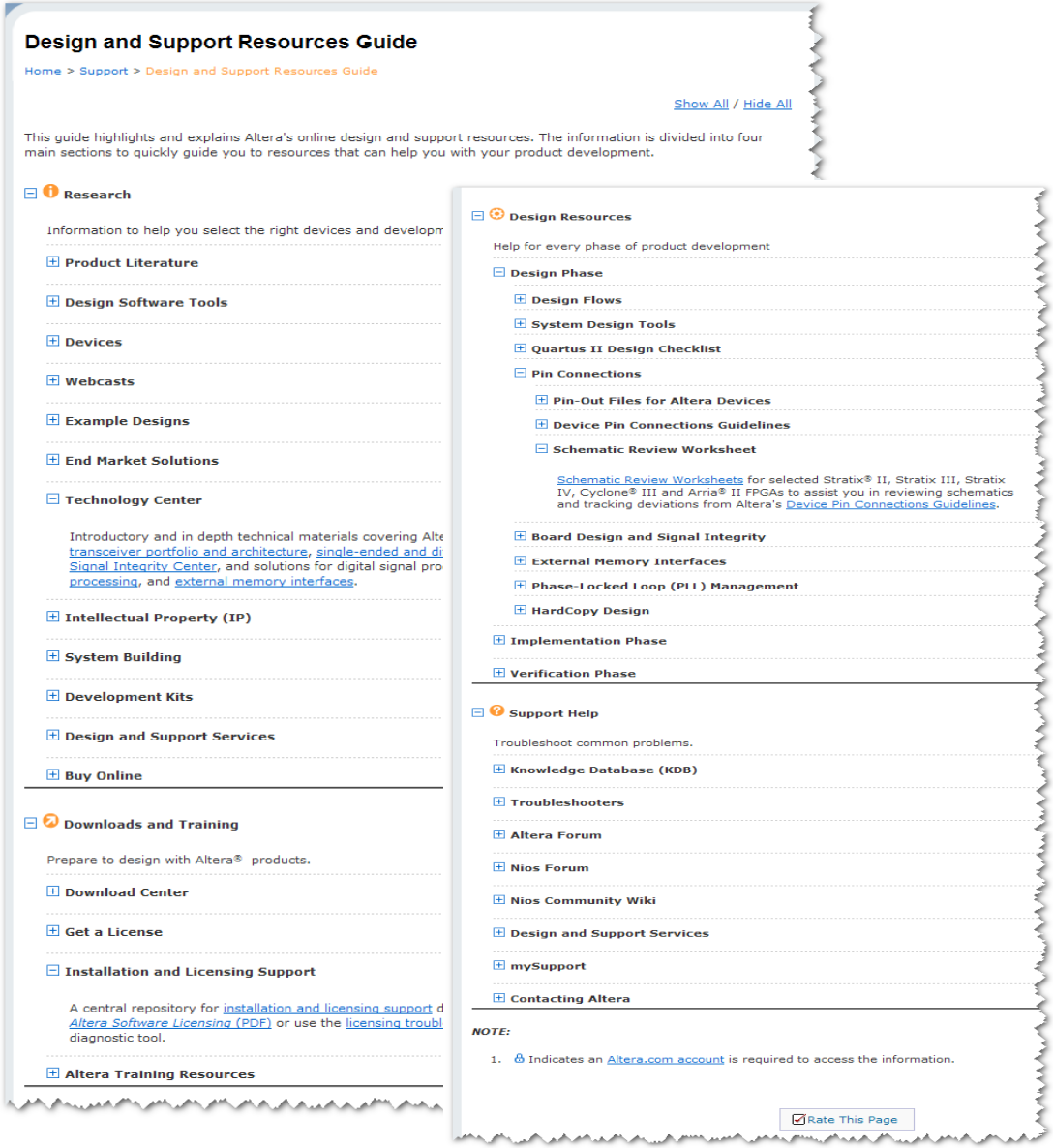
Design and Support Resources Guide (1)

- Index of technical links guides you through every step of your design
- Quickly connects you to important information
- Great web page to bookmark !

➢ www.altera.com/support/design-support-resources/spt-index-guide.html


Design and Support Resources Guide
Home > Support > Design and Support Resources Guide
Show All / Hide All
This guide highlights and explains Altera's online design and support resources. The information is divided into four main sections to quickly guide you to resources that can help you with your product development.
Research
Information to help you select the right devices and developm
Product Literature
Design Software Tools
Devices
Webcasts
Example Designs
End Market Solutions
Technology Center
Introductory and in depth technical materials covering Alte
transceiver portfolio and architecture, single-ended and di
Signal Integrity Center, and solutions for digital signal pro
processing, and external memory interfaces.
Intellectual Property (IP)
System Building
Development Kits
Design and Support Services
Buy Online
Downloads and Training
Prepare to design with Altera® products.
Download Center
Get a License
Installation and Licensing Support
A central repository for installation and licensing support d
Altera Software Licensing (PDF) or use the licensing troubl
diagnostic tool.
Altera Training Resources
Design Resources
Help for every phase of product development
Design Phase
Design Flows
System Design Tools
Quartus II Design Checklist
Pin Connections
Pin-Out Files for Altera Devices
Device Pin Connections Guidelines
Schematic Review Worksheet
Schematic Review Worksheets for selected Stratix® II, Stratix III, Stratix IV, Cyclone® III and Arria® II FPGAs to assist you in reviewing schematics and tracking deviations from Altera's Device Pin Connections Guidelines.
Board Design and Signal Integrity
External Memory Interfaces
Phase-Locked Loop (PLL) Management
HardCopy Design
Implementation Phase
Verification Phase
Support Help
Troubleshoot common problems.
Knowledge Database (KDB)
Troubleshooters
Altera Forum
Nios Forum
Nios Community Wiki
Design and Support Services
mySupport
Contacting Altera
NOTE:
1. Indicates an Altera.com account is required to access the information.
Rate This Page

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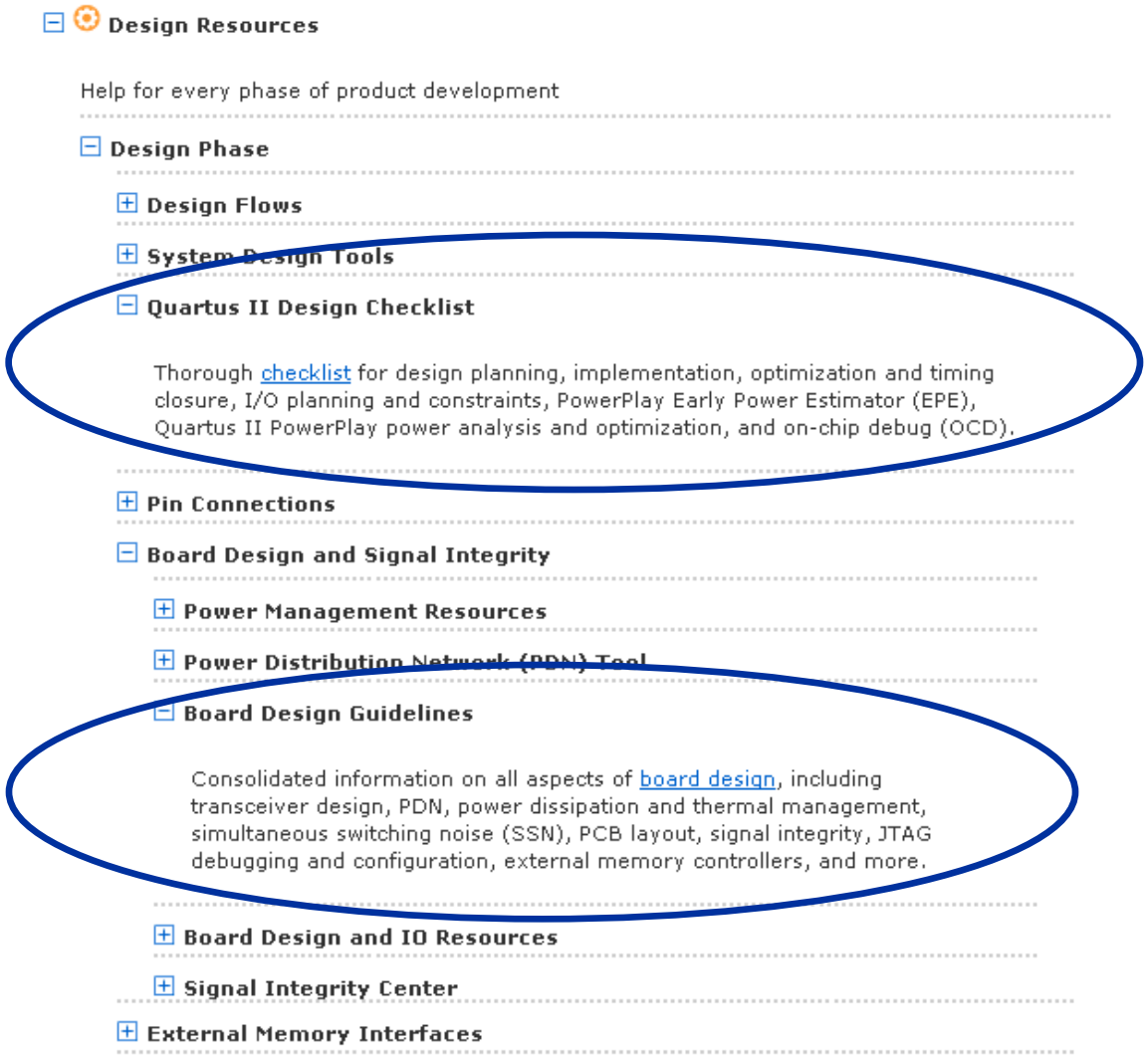
Design and Support Resources Guide (2)

- Each section can be expanded
- Descriptions include web page links to key content
- ➢ *Recommended for new Altera users and seasoned designers!*


Design Resources
Help for every phase of product development
Design Phase
Design Flows
System Design Tools
Quartus II Design Checklist
Thorough checklist for design planning, implementation, optimization and timing closure, I/O planning and constraints, PowerPlay Early Power Estimator (EPE), Quartus II PowerPlay power analysis and optimization, and on-chip debug (OCD).
Pin Connections
Board Design and Signal Integrity
Power Management Resources
Power Distribution Network (PDN) Tool
Board Design Guidelines
Consolidated information on all aspects of board design, including transceiver design, PDN, power dissipation and thermal management, simultaneous switching noise (SSN), PCB layout, signal integrity, JTAG debugging and configuration, external memory controllers, and more.
Board Design and IO Resources
Signal Integrity Center
External Memory Interfaces

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Initial Design Review

- Designs strongly recommended for design reviews:
  - Designs over 130K logic elements (LEs)
  - Designs with a short design cycle
  - Designs planned for high-volume production
  - Designs planned for HardCopy migration
  - High-performance, high-density, and high-complexity designs
    - >80% utilization in I/O pins and internal logic resources
    - >200-MHz internal f_{MAX}
    - High-speed LVDS interfaces
    - High-speed memory interfaces (e.g., DDR, QDR)
    - SERDES interfaces over 3 Gbyte/s

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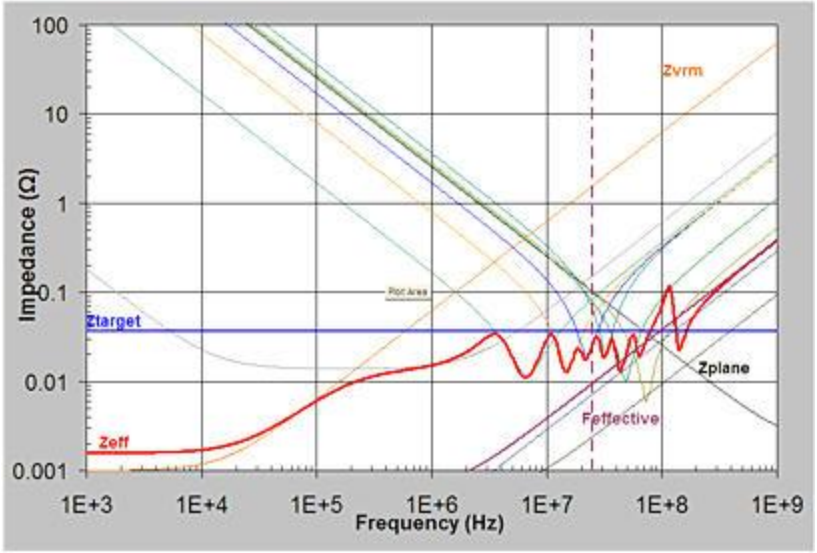
Power Distribution Network

- **Power Distribution Network Design (PDN) Tool** is a graphical tool used with all Altera FPGAs to optimize the board-level PDN
  http://www.altera.com/technology/signal/power-distribution-network/sgl-pdn.html
  - Device-specific PDN tools available for many Altera FPGAs
    - Includes on die and on package decoupling models for supported families
  - Device-agnostic PDN tool available for families not supported by the device-specific PDN tool

User entered parameters help to derive an effective decoupling capacitor solution based on the design requirements



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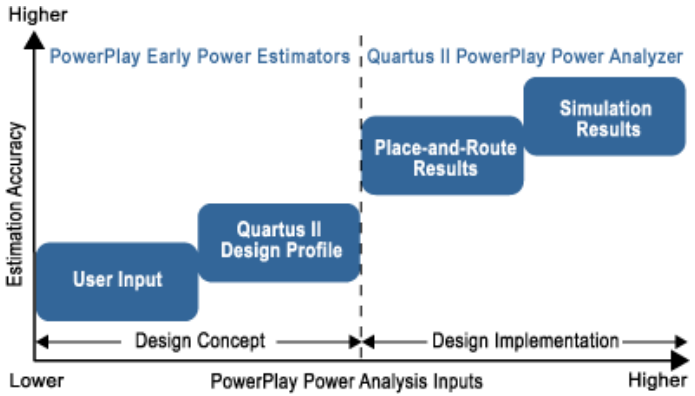
Power Estimation

- **Power Management Resource Center** has information on Altera's power tools, power management basics, and other resources
  http://www.altera.com/support/devices/power/pow-power.html
- PowerPlay power analysis estimates power consumption from early design concept through design implementation:
  www.altera.com/support/devices/estimator/pow-powerplay.jsp
  - **PowerPlay early power estimator** spreadsheets
    - Complete spreadsheet for new project or import data for existing projects
    - Spreadsheets are available for each device family
  - Quartus II **PowerPlay power analyzer**
    - Accurately analyze and optimize both dynamic and static power consumption

As you provide more design details, estimation accuracy is improved with PowerPlay technology



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Pin Connections

- You can download pin-outs for each Altera product family
  www.altera.com/literature/lit-dp.jsp
- Understanding how to connect a complex FPGA to your board can be a complex procedure
  - Recommendations for how to connect the pins for specific FPGA families can be downloaded from the **Device Pin Connection Guidelines** page: www.altera.com/literature/lit-dpcg.jsp

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Device Review Worksheets

- Altera provides both schematic review worksheets and PCB layout review worksheets to help you find mistakes in your schematic and PCB layout and adhere to Altera's guidelines.
  - Device Schematic Review Worksheets are based off of the respective device Pin Connection Guidelines and other referenced Altera® literature applicable to board-level pin connections that need to be considered when you finalize your schematic
  - Device Layout Review Worksheets are based on guidelines that can be found on the Board Design Resource Center and other referenced Altera® literature applicable to board layout techniques and practices that need to be considered when you finalize your PCB layout
  - All worksheets are downloadable in Microsoft Office Word DOC format

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Design Services Network

- Sometimes it makes sense to outsource part or all of your project
  - Due to resource limitations, experience, or skill set
- Use the Altera network of independent design partners
  - Trained and technically competent
  - Knowledgeable about Altera products and solutions

http://www.altera.com/products/design_services/dsv-index.html

Design Service Network (DSN) members offer an extensive portfolio of design services, intellectual property, and products

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References

Getting Started:

myAltera Homepage	www.altera.com/myAltera
Design Examples	www.altera.com/support/examples/exm-index.html
Reference Designs	www.altera.com/support/refdesigns
End Market Solutions	www.altera.com/end-markets
Technology Center	www.altera.com/technology

Device Information:

Altera's Product Selector tool	www.altera.com/products/selector/psg-index.html
Device Family Overview	www.altera.com/products/devices/dev-index.jsp
FPGA and CPLD design flow	www.altera.com/products/software/flows/fpga/flo-fpga.html
Board Design Resource Center	www.altera.com/technology/signal/board-design-guidelines/sgl-bdg-index.html
Power Management Resource Center	www.altera.com/support/devices/power/pow-power.html
Pin Connection Guidelines	www.altera.com/literature/lit-dpcg.jsp
Pin-outs	www.altera.com/literature/lit-dp.jsp
Schematic Review Worksheets	www.altera.com/download/board-layout-test/schematic-review-ws/srw-index.jsp
Altera IBIS Models	http://www.altera.com/download/board-layout-test/ibis/ibs-ibis_index.jsp
Spice Models for Altera Devices	http://www.altera.com/download/board-layout-test/hspice/hsp-index.html

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References

Getting Started:	
Download software and tools	www.altera.com/download
Quartus II software—get started	www.altera.com/products/software/quartus-ii/subscription-edition/qts-se-index.html
Quartus II selector guide	www.altera.com/literature/po/ss_quartussevswe.pdf
Self Service Licensing Center	https://mysupport.altera.com/eentitlement_enu/start.swe
Installation and licensing resources	www.altera.com/support/software/licensing/sof-qts-installation.html
Device Information:	
IP	www.altera.com/products/ip
IP Base Suite	www.altera.com/products/ip/design/basesuite/ip-basesuite.html
OpenCore Plus Evaluation	www.altera.com/literature/an/an320.pdf
IP Core technical support	www.altera.com/support/ip/ips-index.html
Qsys System-integration tool	www.altera.com/qsys
All development kits	www.altera.com/products/devkits/kit-dev_platforms.jsp
Altera development kit technical support	www.altera.com/support/devkits/devkits-index.html

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References

Documentation:

Literature web page	www.altera.com/literature
User guides	www.altera.com/literature/lit-ug.jsp
White papers	www.altera.com/literature/lit-wp.jsp
Literature Updates	https://www.altera.com/subscriptions/email/signup/eml-index.jsp

Training and demonstrations:

Training web page	www.altera.com/training
Training curricula	www.altera.com/education/training/curriculum/trn-curriculum.html
Online demonstrations	www.altera.com/education/demonstrations
Online training	www.altera.com/training/online
Instructor-led training	www.altera.com/servlets/searchcourse?coursetype=Instructor-Led
Virtual Classrooms	www.altera.com/servlets/searchcourse?coursetype=Instructor-Led+%2F+Virtual+Class

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References

Web tools:

Webcasts	www.altera.com/education/webcasts/all
Email Subscription Management Center	www.altera.com/literature/signup/lit-signup.jsp
View support options and service requests	www.altera.com/mySupport

Additional resources:

Design and Support Resources Guide	www.altera.com/support/design-support-resources/spt-index-guide.html
Knowledge Database	www.altera.com/support/kdb
Altera Forum	www.alteraforum.com
Altera Wiki	www.alterawiki.com
Nios Forum	www.alteraforum.com/forum/forumdisplay.php?f=37
Worldwide Sales Support	http://www.altera.com/corporate/contact/sales/worldwide/con-sales-ww.jsp
Design Services Network	http://www.altera.com/products/design_services/dsv-index.html

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